# 2005-2006 Annual Report

Missouri Department of Conservation



# Annual Report



Missouri Department of Conservation Fiscal Year July 1, 2005 to June 30, 2006

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# MISSOURI DEPARTMENT OF CONSERVATION Appoint Fiscal Year 2006

his summary of the
Annual Report highlights
the Conservation
Department's accomplishments
and expenditures from July 1,
2005, through June 30, 2006.
These accomplishments are based
on the three components of the
Department's mission statement.

#### "To protect and manage the fish, forest and wildlife resources of the state."

**New Strategic Plan:** The Missouri Conservation Commission approved a new strategic plan titled *The Next Generation of Conservation* to ensure that the Department of Conservation will continue to conserve Missouri's fish, forest and wildlife resources for the benefit of the state's citizens. The plan identifies nine goals and specific actions that MDC will take to work with Missourians to achieve.

Taum Sauk Restoration: After the failure of the upper reservoir dam at the Taum Sauk hydroelectric facility in December 2005, staff have collaborated with DNR and project consultants on the design of the new stream channel within the state park and dealt with flow issues associated with the lower reservoir recovery activities. Additional work is underway to resolve habitat restoration and mitigation issues associated with the removal of sediment from the lower reservoir and East Fork of the Black River.

**Fish Passage Improvements:** MDC has led efforts to replace low-water crossings with clear-span bridge structures at selected locations in south-central Missouri. These efforts were designed to improve fish passage for the Niangua darter, a federally and state-listed species of conservation concern, and other native aquatic species. County partners and their residents have also benefited through enhanced bridge stability and safety and reductions in the time and expense of county crews in debris removal and bridge repairs.

**Cost-share Funds for Private Landowners:** Approximately 803 private landowners received nearly \$1.3 million in cost-share funds to implement habitat management practices for fish, forest and wildlife resources. The funds helped install 1,431 individual conservation practices.

"To serve the public and facilitate their participation in resource management activities."

**Grants Help Volunteer Fire Departments:** MDC, in cooperation with the U.S. Forest Service, provided more than \$270,000 in grants to more than 140 volunteer fire departments. These grants help fund protective clothing, equipment and training.

**Private Land Services** staff made more than 7,000 on-site landowner visits to offer technical assistance to landowners who wanted help with habitat management plans and handled 3,968 requests for wildlife nuisance and/or damage assistance, including 883 on-site visits.

**Share the Harvest:** Conservation agents coordinate and support the Share the Harvest program with the Conservation Federation of Missouri, local charitable organizations and local meat processors. Approximately 5,100 hunters donated 267,000 pounds of venison to less fortunate Missourians.

**MDC's Comprehensive Wildlife Strategy** (CWS) was approved by the U.S. Fish and Wildlife Service in October 2005. It is not a plan, but a way of approaching conservation planning and implementation that integrates projects and initiatives with conservation partners, other agencies and private landowners.

**Telecheck** was fully implemented during the fall 2005 deer and turkey season and spring 2006 turkey season with great success. It is estimated that hunters saved thousands of dollars on fuel (200,000 gallons) that would have been consumed in traveling to check stations. Information about the deer and turkey harvest was immediately available for enforcement and management—and at a much lower cost.

"To provide opportunity for all citizens to use, enjoy and learn about fish, forest and wildlife resources."

**Stream Team Growth:** The 3,000th team was added, and there were large-scale cleanups on the Missouri, Blue, Meramec and several Ozark rivers. Adopt-An-Access activities have doubled, and we continue to collaborate with canoe outfitters statewide to provide trash bags for floaters.

**Dove Hunting:** MDC has expanded the management of conservation areas to provide dove-hunting opportunities in more than 70 counties.

Connecting Urban Residents With Forests: MDC collaborated with the U.S. Forest Service, Kansas Forestry Department and Bridging the Gap to launch the Heartland Tree Alliance. It was formed to connect Kansas City residents with their urban and community-forests through participation in volunteer projects.

**Educational Unit Developed:** The first educational unit, "Conserving Missouri's Aquatic Ecosystems," was developed for sixth to eighth grades for the Learning Outdoor schools program.

**Deer Hunting:** Significant changes simplified statewide deer regulations and improved our ability to manage deer numbers. Changes included county-level management, unlimited antlerless permits in most counties, four-point antler restriction and an urban counties portion of the firearms season.

Community Assistance: Through the Community Assistance Programs (CAP) and the closely related Corporate and Agency Partnership Program (CAPP), MDC entered into agreements (usually 25 per year) with cities, counties, state and federal agencies, businesses, foundations, schools and colleges to provide fisheries management at existing lakes and ponds and to cooperatively develop and maintain facilities for anglers and boaters at lake and stream areas. MDC has agreements with 113 partners for the cooperative management of 145 public lakes, 41 stream-access areas, four lake-access areas and six aquatic resource-education ponds.

### What the Money Bought—Fiscal Year 2006

<u>County Assistance Payments—\$1,396,316</u> Included payments to Missouri's counties for levee and drainage district taxes, forest cropland payments, payments in lieu of real estate taxes and county aid road trust payments. Since 1980, more than \$11.75 million has been paid to Missouri counties in lieu of taxes.

<u>Capital Improvements</u>—\$31,881,332 Work included fish hatchery improvements, development of nature centers, river accesses, wetlands, shooting ranges, land acquisition transactions and renovation and repair of facilities statewide.

<u>Fisheries</u>—\$11,649,737 Managed 906 lakes and 40 stream management areas for public fishing. More than 840,000 people bought fishing permits, making fishing one of the most popular outdoor activities in Missouri. Fish hatcheries stocked 7.6 million fish in public lakes and streams.

Forestry—\$15,168,275 Fostered a healthy and growing forest resource. Examples include distributing 5 million seedlings for planting to nearly 13,000 landowners, developing 180 Landowner Forest Stewardship Plans, bringing an additional 29,000 acres under total resource management, managing 438,700 acres of public forest land, monitoring insect and disease threats and facilitating development of the state's forest industry.

<u>Wildlife</u>—<u>\$16,219,278</u> Worked toward ensuring wildlife populations are in harmony with habitat and human enjoyment. Managed 526,198 acres of public land and implemented programs to maintain and restore natural communities and wildlife diversity across Missouri's landscape.

<u>Outreach and Education—\$16,232,568</u> Sustained and nourished Missourians' connection to the outdoors by providing educational materials, schoolteacher contacts, outdoor skills programs, the *Missouri Conservationist* magazine, TV show, books, videos, informational programs, staffed shooting ranges and conservation nature centers.

<u>Private Land Services—\$7,908,722</u> Helped private landowners to achieve long-term conservation of natural resources and their land-use objectives. Delivered nearly \$1.3 million in cost-share funds to 803 private landowners; provided on-site technical assistance to more than 7,000 private landowners; improved habitat for quail and grassland songbirds on more than 10,700 acres of private land; helped landowners enroll almost 6,400 acres into the Wetland Reserve Program; and assisted almost 4,000 private landowners in controlling nuisance wildlife.

<u>Protection—\$13,640,869</u> Paid for law enforcement in every county as well as resource management, information, education and public service contact activities conducted by 167 conservation agents who directly contacted more than 625,000 people. Coordinated the Share the Harvest Program where more than 5,000 deer hunters donated more than 267,000 pounds of venison to less fortunate Missourians. Conservation agents, along with 2,200 volunteer instructors, conducted 1,024 hunter education classes, certifying 27,003 students.

Resource Science—\$12,095,061 Provided the science-based information needed to effectively manage Missouri's natural resources. Resource Science monitors the status of Missouri's fish, forests and wildlife, recommends conservation actions, evaluates these actions and reports the results. In addition to surveys of fish and wildlife, more than 200,000 Missourians were contacted to determine their outdoor activities and opinions about conservation programs.

Regional Public Contact Offices—\$4,345,058 Provided regional public contact offices.

<u>Administrative Services and Human Resources—\$29,962,307</u> Paid for human resources, federal reimbursement administration, hunting and fishing permit point-of-sale system, fiscal services, distribution center, print shop, fleet management, vehicle and equipment maintenance centers and information management and technology. Also includes other agency appropriations, Department-wide equipment and other essential services.

<u>Design and Development—\$11,526,041</u> Provided engineering, architectural, surveying and construction services for conservation programs and maintenance of conservation areas and facilities.

<u>Administration—\$2,361,266</u> Paid for audits, legal counsel and the coordination of strategic planning, environmental policy development, cultural resource reviews, public involvement and river basin management.

#### **RECEIPTS**

Conservation Sales Tax	\$99,069,219
Permit Sales	\$29,723,302
Federal Reimbursements	\$24,387,069
Sales and Rentals	\$6,692,101
Other Sources	\$3,570,635
Interest	\$1,265,130
Total Receipts	\$164,707,456

#### **DISBURSEMENTS**

County Assistance Payments	.0.80%
Capital Improvements	18.28%
Fisheries	.6.68%
Forestry	.8.70%
Wildlife	.9.30%
Outreach and Education	.9.31%
Private Land Services	.4.54%
Protection	.7.82%
Resource Science	.6.94%
Regional Public Contact Offices	.2.49%
Administrative Services & Human Resources	17.18%
Design and Development	.6.61%
Administration	.1.35%

#### MISSOURI STATE BUDGET

Health & Social Services37	.8%
Education28	.1%
Government Services20	.1%
Transportation10	.4%
Natural & Economic Resources2	.8%
Conservation0	.8%
MDC represents less than 1% of the total state but	dget
Total State Budget \$20,479,755,	244

# Missouri State Constitutional Language

Section 40(a). Conservation commission, members, qualifications, terms, how appointed-duties of commission-expenses of members.—The control, management, restoration, conservation and regulation of the bird, fish, game, forestry and all wildlife resources of the state, including hatcheries, sanctuaries, refuges, reservations and all other property owned, acquired or used for such purposes and the acquisition and establishment thereof, and the administration of all laws pertaining thereto, shall be vested in a conservation commission consisting of four members appointed by the governor, by and with the advice of and consent of the senate, not more than two of whom shall be of the same political party. The members shall have knowledge of and interest in wildlife conservation. The members shall hold office for terms of six years beginning on the first day of July of consecutive odd years. Two of the terms shall be concurrent; one shall begin two years before and one two years after the concurrent terms. If the governor fails to fill a vacancy within thirty days, the remaining members shall fill the vacancy for the unexpired term. The members shall receive no salary or other compensation for their services as members, but shall receive their necessary traveling and other expenses incurred while actually engaged in the discharge of their official duties.

Source: Const. of 1875, Art. XIV, Sec. 16 (as adopted November 3, 1936). (Amended August 8, 1972)

**Section 40(b). Incumbent members.**—The members of the present conservation commission shall serve out the terms for which they were appointed, with all their powers and duties.

**Section 41. Acquisition of property-eminent domain.**—The commission may acquire by purchase, gift, eminent domain, or otherwise, all property necessary, useful or convenient for its purposes, and shall exercise the right of eminent domain as provided by law for the highway commission.

Source: Const. of 1875, Art. XIV, Sec. 16.

**Section 42. Director of conservation and personnel of commission.**—The commission shall appoint a director of conservation who, with its approval, shall appoint the assistants and other employees deemed necessary by the commission. The commission shall fix the qualifications and salaries of the director and all appointees and employees, and none of its members shall be an appointee or employee. Source: Const. of 1875, Art. XIV, Sec. 16.

Section 43(a). Sales tax, use for conservation purposes.—For the purpose of providing additional moneys to be expended and used by the conservation commission, department of conservation, for the control, management, restoration, conservation and regulation of the bird, fish, game, forestry and wild-life resources of the state, including the purchase or other acquisition of property for said purposes, and for the administration of the laws pertaining thereto, an additional sales tax of one-eighth of one percent is hereby levied and imposed upon all sellers for the privilege of selling tangible personal property or rendering taxable services at retail in this state upon the sales and services which now are or hereafter are listed and set forth in, and, except as to the amount of tax, subject to the provisions of and to be collected as provided in the "Sales Tax Law" and subject to the rules and regulations promulgated in connection therewith; and an additional use tax of one-eighth of one percent is levied and imposed for the privilege of storing, using or consuming within this state any article of tangible personal property as set forth and provided in the "Compensating Use Tax Law" and, except as to the amount of the tax, subject to the provisions of and to be collected as provided in the "Compensating Use Tax Law" and subject to the rules and regulations promulgated in connection therewith.

(Adopted November 2, 1976)

**Section 43(b).** Use of revenue and funds of conservation commission.—The moneys arising from the additional sales and use taxes provided for in section 43(a) hereof and all fees, moneys or funds arising from the operation and transactions of the conservation commission, department of conservation, and from the application and the administration of the laws and regulations pertaining to the bird, fish, game, forestry and wildlife resources of the state and from the sale of property used for said purposes, shall be expended and used by the conservation commission, department of conservation, for the control, management, restoration, conservation and regulation of bird, fish, game, forestry and wildlife resources of the state, including the purchase or other acquisition of property for said purposes, and for the administration of the laws pertaining thereto, and for no other purpose. The moneys and funds of the

conservation commission arising from the additional sales and use taxes provided for in S 43(a) hereof shall also be used by the conservation commission, department of conservation, to make payments to counties for the unimproved value of land for distribution to the appropriate political subdivisions as payment in lieu of real property taxes for privately owned land acquired by the commission after July 1. 1977, and for land classified as forest cropland in the forest cropland program administered by the department of conservation in such amounts as may be determined by the conservation commission, but in no event shall amount determined be less than the property tax being paid at the time of purchase of acquired lands.

Source: Const. of 1875, Art. XIV, Sec. 16. (Amended November 2, 1976) (Amended November 4, 1980)

Section 43(c). Effective date-self-enforceability. — The effective date of this amendment shall be July 1, 1977. All laws inconsistent with this amendment shall no longer remain in full force and effect after July 1, 1977. All of the provisions of sections 43(a)-(c) shall be self-enforcing except that the general assembly shall adjust brackets for the collection of the sales and use taxes. (Adopted November 2, 1976)

Section 44. Self-enforceability-enabling clause-repealing clause. – Sections 40–43, inclusive, of this article shall be self-enforcing, and laws not inconsistent therewith may be enacted in aid thereof. All existing laws inconsistent with this article shall no longer remain in force or effect. Source: Const. of 1875, Art. XIV, Sec. 16

Section 45. Rules and regulations-filing-review. — The rules and regulations of the commission not relating to its organization and internal management shall become effective not less than ten days after being filed with the secretary of state as provided in section 16 of this article, and such final rules and regulations affecting private rights as are judicial or quasi-judicial in nature shall be subject to the judicial review provided in section 22 of article V.

Section 46. Distribution of rules and regulations. — The commission shall supply to all persons on request, printed copies of its rules and regulations not relating to organization or internal management.

### The Conservation Commission and Director

n 1936, the people of Missouri, through the initiative petition process, placed on the ballot and passed language that would create a non-political Conservation Commission with broad authority. The Conservation Commission is vested by the state constitution with responsibility for proper management of the state's fish, forest, and wildlife resources. The four Conservation Commissioners are appointed by the Governor. Their term of office is six years. The Commission is also responsible for hiring the Director.



Mr. Stephen Bradford Cape Girardeau Term: 7/27/2001 to 6/30/2007 Party Affiliation: Democrat



Mr. William F. McGeehan Marshfield Term: 7/11/2005 to 6/30/2011 Party Affiliation: Republican



Ms. Cynthia Metcalfe Saint Louis Term: 7/27/2001 to 6/30/2007 Party Affiliation: Democrat



Mr. Lowell Mohler Jefferson City Term: 7/09/2003 to 6/30/2009 Party Affiliation: Republican

#### Director



Mr. John Hoskins

#### **Our Mission**

To protect and manage the fish, forest, and wildlife resources of the state; to serve the public and facilitate their participation in resource management activities; and to provide opportunity for all citizens to use, enjoy, and learn about fish, forest, and wildlife resources.

# **Conservation at a Glance**

- ▲ We Listen to Missourians
- ▲ What Missourians Say About Conservation
- ▲ The Economics of Conservation in Missouri
- ▲ Wildlife Recreation
- ▲ Hunting and Fishing
- ▲ Forestry and Wood Products



# We Listen to **Missourians**

The Missouri Department of Conservation believes that all Missouri citizens are important and we want to listen and act to earn their trust. Our job is to listen, understand, and personally deliver programs and services in a manner that benefits all Missourians and the fish, forest, and wildlife resources in Missouri.



## To accomplish our mission we must listen to Missourians. We do this in a variety of ways.

- The Conservation Commission meets regularly and anyone may contact the Conservation Commission with comments or request to appear at a Commission meeting.
- The Director of the Conservation Department may be personally contacted at Department headquarters in Jefferson City, by telephone, or electronic mail.
- The Department Ombudsman works with citizens to resolve conflicts and answers a wide variety of questions by mail, telephone, and electronic mail.
- The Department conducts a wide variety of statistically accountable mail surveys, telephone surveys, and focus groups to determine the opinions and attitudes of Missourians about conservation and the Department of Conservation. The Department has conducted attitude, opinion, satisfaction, and participation surveys for over 25 years.
- The Department has eight regional service centers with staff available to assist Missourians with their conservation requests and needs.
- The Department's monthly magazine, free to Missourians that request it, includes a letter to the editor section and an "Ask the Ombudsman" column.
- The Department maintains an extensive internet web page with conservation information, how to contact the Department, and an online comment form.
- The Department conducts frequent public forums to obtain interactive feedback from all Missourians at locations throughout the state.
- Department regulations are formed and discussed in a public setting that invites citizen participation.

# What **Missourians** Say About Conservation

The majority of Missourians feel the Department of Conservation is doing an excellent or good job of providing services to themselves (64%), their families (63%), the community (61%), and the state (67%). Most Missourians say they are either very familiar (21%) or somewhat familiar (65%) with the Missouri Department of Conservation.

Information from the Missouri Department of Conservation and the 2003 Conservation Opinion Survey, University of Missouri.



- Most Missourians are either very interested (56%) or somewhat interested (37%) in Missouri's fish, forests and wildlife.
- Most Missourians (73%) agree that land should be acquired for fish, forest, and wildlife conservation.
- Most Missourians (79%) agree that the Department of Conservation should make an effort to restore animals that once lived or are currently very rare in the state.
- Most Missourians (82%) agree that the Department of Conservation should help private landowners who want to restore native communities of plants and animals.
- Almost all Missourians (88%) approve of hunting for food.
- About one-half of Missourians (51%) approve of cutting down trees to make lumber, furniture, or other wood products.
- The majority of Missourians (55%) agree that trapping is OK as long as it is regulated.
- Missourians are outdoor-oriented, with households having one or more participants that enjoy watching television or outdoor programs (82%), read about nature and wildlife (76%), feed birds and wildlife at home (64%), garden (66%), use Conservation Areas (62%), fish (58%), go boating (40%), hunt (34%), target shoot (37%), or volunteer in environmental or conservation groups (15%).
- Time is mentioned as the biggest obstacle to the enjoyment of outdoor activities by Missourians.
- Missourians are a uniquely outdoor-oriented citizenry, with a majority preferring outdoor recreational activities (56%) over reading or watching TV (34%), or structured sports (9%).



# The **Economics of** Conservation in Missouri

The amount of state sales tax revenue generated from fish, forest, and wildlife recreation spending is about the same amount of sales tax revenue received by the Department of Conservation from the one-eighth of one percent Conservation Sales Tax-

Conservation pays its way in Missouri.

Information from the Missouri Department of Conservation, the Missouri Forest Products Association, and the 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation - Conducted by the United States Bureau of Census for the United States Fish and Wildlife Service.



- The Department of Conservation paid almost one million dollars (\$998,198.74) in 2005 from the Conservation Sales Tax to Missouri counties in Forest Cropland payments, Levee and Drainage District payments, and In-Lieu-of-Property-Tax payments.
- The forestry and wood products industry in Missouri is an over 4.4 billion dollar activity and supports 32,250 jobs.
- Missourians and non-residents spend over one and one-half billion dollars (\$1,658,041,238.00) annually related to fish, forest, and wildlife recreation. These expenditures generate 3.3 billion dollars annually of business revenue in Missouri.
- The annual expenditures related to fish, forest, and wildlife recreation support 29,727 jobs in Missouri.
- Fish, forest, and wildlife recreation spending generates annually 79 million dollars of state sales tax revenue.
- In Missouri, 2.5 million residents and nonresidents, aged 16 years and older, participated in fishing, hunting, or wildlife-associated recreation.
- Resident anglers spend over 11 million days afield (11,308,772), resident hunters over six million (6,224,714), and resident wildlifewatchers nearly 11 million (10,937,486) in Missouri. Nonresident anglers add almost two million days (1,970,055), nonresident hunters one-third of a million (380,887), and nonresident wildlifewatchers over one and one-half million (1,510,458).
- Deer hunters in Missouri, age 16 years and older (372,726), spend over three and three-quarter million days afield (3,783,251) and spend, on average, \$16.27 each day. Resident deer hunters spend \$10.60 per day for an annual total of \$613.74 per person, which results in an overall total of over two hundred million (\$200,377,454.00) annually. Non-resident deer hunters spend \$139.22 per day for an annual total of \$600.77 per person, which results in an overall total of over 27 million (\$27,779,087.00).
- Deer hunting in Missouri generates 445 million dollars of business activity annually. This results in nearly 9 million in state sales tax revenue and almost four million of state income tax revenue.
- Deer hunting expenditures annually support over 4,162 jobs in Missouri.

# hunting and fishing

Hunters 489,000

**Anglers** 1,215,000

**Total Expenditures** \$1.209 billion

Total Jobs Supported 21,877

\$531 million Earnings from Expenditures

State Sales Tax Revenue \$57 million

Sales and Income Tax Revenue \$77 million

Total Business-

Generated Revenue \$2.415 billion



Hunters and anglers in Missouri annually generate \$77 million in state sales and income taxes.

Hunters and anglers support more than 21,877 jobs each year.

#### **TAKE A CLOSER LOOK**

- More Missourians hunt or fish than the number who attend St. Louis Rams or Kansas City Chiefs games.
- One of every four Missouri residents hunts or fishes.
- Annual spending by hunters and anglers is more than the cash receipts for cattle production, the state's most valuable agricultural commodity.
- The amount of sales tax revenue generated by fish, forest, and wildlife recreation is about the same amount of sales tax received by the Department of Conservation from the oneeighth cent sales tax—in other words, conservation pays its way in Missouri.

Information from the Missouri Department of Conservation and the U.S. Fish and Wildlife Service 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.







# ivildlife recreation

Wildlife-Watchers 1,826,000

Total Expenditures \$449 million

Total Jobs Supported 7,850

Earnings from Expenditures \$200.1 million

State Tax Revenue \$22.1 million

Sales & Income Tax Revenue \$30 million

Total Business-

Generated Revenue \$937.8 million

#### STATE TAX REVENUE INFORMATION

Wildlife-watchers in Missouri annually pay more than \$30 million in state sales and income taxes.

#### **JOBS**

Wildlife-watching activities in Missouri support more than 7,850 jobs each year.

#### **TAKE A CLOSER LOOK**

- In Missouri, adults involved in wildlife-associated recreation would fill Arrowhead Stadium in Kansas City more than 23 times.
- Missourians are outdoor-oriented—8 of 10 feed birds and wildlife at their homes and 6 of 10 use Department of Conservation areas.
- The amount of sales tax revenue generated by fish, forest, and wildlife recreation is about the same amount of sales tax received by the Department of Conservation from the oneeighth cent sales tax—in other words, conservation pays its way in Missouri.

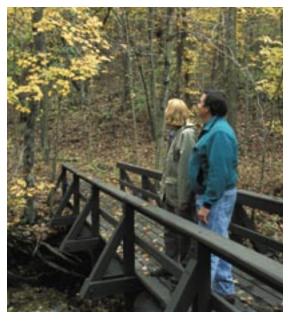
# CONSERVATION PAYS ITS WAY IN MISSOURI



Information from the Missouri Department of Conservation and the U.S. Fish and Wildlife Service 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.







# forestry and wood products

**Total Forested Acres** 14 million **Privately Owned Acres** 85 percent **Publicly Owned Acres** 15 percent Wood-Using Industry Dollars \$4.43 billion Total Jobs Supported 32,250

Wood-Using Industry

Labor Income \$1.1 billion



### STATE TAX REVENUE INFORMATION

Forestry and the wood-using industries in Missouri generate \$54 million each year in state sales tax.

#### **JOBS**

Wood industry firms and activities in Missouri support more than 32,250 jobs each year.

#### TAKE A CLOSER LOOK

- Each year about 1.4 billion tree seedlings are planted.
- More than 1 million acres of forests have been added to Missouri's landscape in the last 30 years.
- Forests in Missouri are increasing faster than they are being harvested.
- Most of the forests in Missouri are privately owned.
- Forests are important to Missourians who enjoy outdoor recreation such as camping, sightseeing, watching birds, canoeing, photographing nature, hunting or fishing. Many Department of Conservation areas have campsites or are open for primitive camping.
- Forests in Missouri are essential for healthy streams, clean water, wildlife habitat and environmental stability.





# **CONSERVATION PAYS ITS WAY IN MISSOURI**

Information from the Missouri Department of Conservation and the Missouri Forest Products Association.



# **Department Accomplishments**

- ▲ Major Accomplishments
- ▲ Notable Accomplishments

## **Department of Conservation: Major Accomplishments**

The accomplishments below affirm MDC's dedication to the three components of its mission statement:

# \* To protect and manage the fish, forest and wildlife resources of the state

#### Approved new strategic plan

The Missouri Conservation Commission approved a new strategic plan titled The Next Generation of Conservation to ensure that the Department of Conservation will continue to conserve Missouri's fish, forest and wildlife resources for the benefit of the state's citizens. The title of the plan reflects the timeless fact that each generation determines the relative health of the natural resources left to their children. The plan identifies nine goals, as well as specific actions, MDC will work with Missourians to achieve. The Next Generation of Conservation strategic plan—the product of a year-long process—used research about the condition of Missouri's plants and animals, Missourians' expectations and desires, and the input of conservation partners. More information is available online at www.missouriconservation.org/documents/about/nextgen.pdf

#### Asked federal commission to help protect resources

The failure of the upper reservoir dam at the Taum Sauk hydroelectric facility in December shifted our focus from relicensing to restoration activities. Hundreds of acre-feet of sediment and debris were scoured from Profitt Mountain during the flood and were deposited both in the floodplain and into the reservoir and stream below. Restoration has been compartmentalized, progressing upstream to downstream. Staff have collaborated with DNR and project consultants on the design of the new stream channel within the state park and dealt with flow issues associated with the lower reservoir recovery activities. Additional work is underway to resolve habitat restoration and mitigation issues associated with the removal of sediment from the lower reservoir and East Fork of the Black River.

Following collaboration efforts, which resulted in a settlement agreement that asks the Federal Energy Regulatory Commission to adopt specific conditions to protect the fishery and wetland resources, MDC worked with the other parties to develop a joint explanatory statement of the settlement agreement. In addition, MDC joined other resource agencies and AmerenUE in efforts to determine how to design, construct and install a fish barrier net in front of the turbines of Bagnell Dam. Four pre-design studies were conducted. There also have been collaborative efforts regarding water quality enhancement measures to be taken within the operation of Bagnell Dam. Water quality and habitat improvements will be provided for the 82 miles of the Osage River below Bagnell Dam. The Conservation Department and the Missouri Department of Natural Resources also have assisted AmerenUE in resolving issues related to the natural resource protection conditions filed in their Shoreline Management plan.

#### Fish passage improvements

Working closely with a variety of partners which include the U.S. Fish and Wildlife Service, the Missouri Conservation Heritage Foundation and county commissions in Dallas, Hickory and Miller counties, MDC has led efforts to replace low-water crossings with clear-span bridge structures at selected locations in south-central Missouri. These efforts are consistent with our Comprehensive Wildlife Conservation Strategy and were designed to improve fish passage for the Niangua darter, a federally and state-listed species of conservation concern, and other native aquatic species. Monitoring of these projects by MDC staff demonstrates that barriers to fish passage have been effectively removed, sediment transport and channel stability have been enhanced, and additional habitat has been made available for colonization by Niangua darters, as well as sport fish such as smallmouth bass. At the same time, these projects have benefited the county partners and their residents through enhanced bridge stability and safety, and reductions in the time and expense invested by county crews in debris removal and bridge repairs following high-water events.

#### Healthier forests through management

MDC continued to promote natural communities through forest management activities on public land. More than 6,000 acres were managed in the central Ozarks, with an emphasis on natural community restoration.

#### Provided financial assistance for landowners to improve state's resources

Approximately 803 private landowners received nearly \$1.3 million in cost-share funds to implement beneficial habitat management practices for fish, forest and wildlife resources. The funds helped install 1,431 individual conservation practices.

#### Partnerships strengthen support to landowners

Staff developed approximately 38 partnerships with federal, state and non-governmental organizations. These partnerships helped MDC enhance technical and financial assistance and equipment support to landowners interested in improving fish, forest and wildlife resources. Some examples: assisted Missouri USDA with developing and applying \$150 million in Farm Bill conservation programs; collaborated with Missouri Soil and Water Conservation districts to provide native warm-season grass drills to Missouri landowners; and leveraged more than \$100,000 with Pheasants Forever.

#### Enforced resource protection laws

MDC enforces wildlife laws to maintain compliance with the *Wildlife Code*, as well as other state laws for the safe public use of MDC-owned lands. Conservation agents contacted 211,000 hunters and anglers in FY06 to ensure compliance and provide regulation information. During these contacts, agents noted 26,800 resource violations, issued 4,013 written warnings and made 7,504 arrests. This resulted in a 96 percent conviction rate, which indicates the high-quality work by agents in the area of resource law enforcement.

#### Quail and grassland-bird habitat management, monitoring and evaluation

MDC continues to find solutions to declining populations of northern bobwhite quail, greater prairie chickens and other grassland birds. The status of quail/grassland-bird populations and efforts to reduce their decline are top MDC priorities. We have restored quail and grassland-bird habitats on MDC lands, implemented regional quail/grassland bird plans in appropriate bird emphasis areas, and identified prospective landowner cooperatives on private lands surrounding select MDC lands within quail focus areas.

We also have monitored quail and bird populations to aid the management evaluation process. MDC leads the recovery efforts to reverse the continued decline of the state-endangered greater prairie chicken. Through a variety of media channels, we have informed citizens of the dramatic land-use and habitat changes which have impacted the quality and quantity of quail, prairie chicken and other grassland-bird species in Missouri. We have formed partnerships with the Missouri Prairie Foundation, Audubon Society of Missouri, Audubon Missouri, Grasslands Coalition, Quail Unlimited, Quail Forever, National Wild Turkey Federation, The Nature Conservancy, Osage Plains Prairie Seed Cooperative, Partners in Flight, state and federal agencies, and other conservation organizations to restore grassland/prairie habitat.

#### Greater prairie chicken recovery plan

A Greater Prairie Chicken Recovery plan was finalized in spring 2006. Proposed management actions include: development of habitat landscapes to approximate a Partners In Flight model landscape; provision of nesting and brood-rearing habitats in close proximity in an effort to increase recruitment; translocations of birds to landscapes that have been improved through management actions such as tree removal, grazing and prescribed burning; examination of landscape cover patterns to assess their suitability for prairie chickens; and the use of simulated leks (decoys and recorded calls) to attract native populations to expand into restored habitat and to enhance site fidelity of translocated birds.

Beginning in 2007, with partial funding from a grant from the Natural Resources Conservation Service, we will implement projects designed to evaluate the success of these efforts. We plan to monitor individual birds via radiotelemetry to help evaluate the effectiveness of proposed habitat management (particu-

larly patch-burn grazing) in providing suitable nesting and brood-rearing cover. The monitoring also will help evaluate the success of releases of translocated birds to re-establish a sub-population in improved habitat. Finally, it will provide reference data from a sub-population that appears to be increasing. Habitat use and survival data will be evaluated with respect to habitat management actions.

## \* To serve the public and facilitate their participation in resource-management activities

#### Telecheck saves hunters time and money

Mandatory in-person checking for deer and turkey has been a fixture in Missouri since deer and turkey hunting began. The information collected at in-person check stations has been critical to population management of deer and turkey. However, in-person checking required a successful hunter to physically transport the animal to a location which is often not very close to where the animal was harvested. In 2002 MDC began evaluating the use of the telephone and Internet for checking deer and turkey (telecheck). Results of experimental tests of the telecheck system were positive, so telecheck was fully implemented during the fall 2005 deer and turkey season and spring 2006 turkey season. The full implementation of telecheck was a great success for the citizens and hunters of Missouri. It is estimated that hunters saved thousands of dollars on fuel (200,000 gallons) that would have been consumed in traveling to in-person check stations. They also avoided the inconvenience of loading the animal in a vehicle and transporting it back and forth to the check station location. MDC was able to collect information about deer and turkey harvest on a 'real-time' basis (electronic information was immediately available for enforcement and management) and at a much lower cost.

#### Grants help volunteer fire departments

MDC, in cooperation with the U.S. Forest Service, provided more than \$270,000 in grants to more than 140 volunteer fire departments. These grants help fund protective clothing, equipment and training.

#### Technical assistance provided to landowners

Field staff provided timely and responsive service through approximately 16,199 rural and urban landowner contacts, including more than 7,000 on-site landowner visits. Staffers offered technical assistance to landowners who wanted help with habitat management plans toward achieving their land-use objectives. Staffers also answered 3,968 requests for wildlife nuisance and/or damage assistance, including 883 on-site visits.

Conservation agents provide technical assistance, as well. They inspect ponds up to three acres in size, which are stocked free throughout Missouri. During FY06, agents made 18,946 resource management contacts. They delivered 156,000 pounds of food plot seed to 3,253 Missouri landowners in the MDC-administered Missouri Seed program. Agents also assisted with controlled burns, fish stocking and a variety of other management duties on public lands.

#### Helped Missourians help others through meat-donation program

Conservation agents coordinate and support the Share the Harvest program with the Conservation Federation of Missouri, local charitable organizations and local meat processors. Together these groups have supported the donations of more than 130 tons of meat each year the last two years. During FY06, approximately 5,100 hunters donated 267,000 pounds of venison to less fortunate Missourians. Since the inception of the program, more than 548 tons of deer meat have been donated to Missouri citizens. Hunters who wish to donate their entire deer may receive a \$35 reduction in the processing price. The \$35 is paid by the Missouri Conservation Federation. Hunters also may designate part of their deer to be donated to the Share the Harvest program.

#### Conserving all Missouri wildlife with Comprehensive Wildlife Strategy

MDC's Comprehensive Wildlife Strategy (CWS) was approved by the U.S. Fish and Wildlife Service in October 2005. The Missouri strategy is not a plan, but a way of approaching conservation planning and implementation that integrates projects and initiatives with conservation partners and other agencies. One of the products of the CWS is the "Directory of Conservation Opportunity Areas (COAs) in Missouri," which describes many places with the highest potential for conservation success-places where MDC will intentionally work with partners, local communities and private landowners.

These conservation opportunity areas are promising places to deliver the commitments of *The Next* Generation of Conservation. MDC's CWS steering committee and other staff who developed the strategy are working on MDC in-reach, distributing and training on the spatial data layers developed for the strategy, and working with stakeholders in some of the highest priority COAs. MDC managers have used the strategy to get additional grants for habitat management. The strategy has been useful to identify regional conservation issues with neighboring states, which also will increase funding for habitat conservation in Missouri.

## \* To provide opportunity for all citizens to use, enjoy, and learn about fish, forest and wildlife resources

#### Trout hatchery improvements made

The Conservation Commission, at its August 2004 meeting, approved proceeding with an extensive program of trout hatchery improvements to support goals and objectives in A Plan for Missouri Trout Fishing. During FY06, we completed bidding on priority projects and began construction for key projects at Roaring River, Shepherd of the Hills and Montauk hatcheries. We upgraded the Roaring River water-supply system, and applied sealant to raceways. At Roaring River, Montauk and Shepherd of the Hills hatcheries, we installed dissolved oxygen management and degassing systems that will significantly improve waterquality management. In addition, we began large-scale construction at Shepherd of the Hills Hatchery, which included a brown-trout rearing complex, fish ladder, additional rearing space, and netting to reduce bird depredation on trout.

#### More community assistance programs executed

Through the Community Assistance Program (CAP) and the closely related Corporate and Agency Partnership Program (CAPP), MDC enters into agreements (usually 25-year) with cities, counties, state and federal agencies, businesses, foundations, schools and colleges to provide fisheries management at existing lakes and ponds and to cooperatively develop and maintain facilities for anglers and boaters at lake and stream areas. MDC has cooperative agreements with 113 partners for the cooperative management of 145 public lakes (9,212 acres of water), 41 stream-access areas, four lake-access areas and six aquatic resource-education ponds.

MDC and its partners constructed fishing and motorboat access facilities at Lanagan Access (Lanagan), Lexington Riverfront Park (Lexington), Morse Mill Park Access (Jefferson County), Old Marceline City Reservoir (Marceline), Route 66 State Park (MO DNR), Triangle Boat Club Access (Pemiscot County) and Washington State Park (MO DNR). These projects were partially funded through the Federal Aid in Sport Fish Restoration program administered by the U.S. Fish and Wildlife Service. MDC and its partners also renovated Fairgrounds Lake (Macon County), Maxwell Taylor Park Pond (Keytesville) and Suson Rearing Pond (St. Louis County), and constructed a fish-cleaning station and parking area at the Wappapello Lake Spillway Recreation Area (U.S. Army Corps of Engineers).

MDC executed new CAP and CAPP agreements with 10 partners, amended existing agreements with seven partners (usually to provide for new programs or facility development) and renewed agreements with two partners.

#### Stream Team growth continues

The Missouri Stream Team program continued to grow, with its members completing many successful projects. The 3,000th team was added, and there were large-scale cleanups on the Missouri, Blue, Meramec and several Ozark rivers. Several training workshops were held to educate volunteers and better equip them for improving and protecting their adopted streams. Adopt-An-Access activities have doubled recently and we continue to collaborate with canoe outfitters statewide to provide trash bags for floaters.

#### Formed alliance to connect urban residents with forests

MDC collaborated with the U.S. Forest Service, Kansas Forestry Department and Bridging the Gap to launch the Heartland Tree Alliance. The objective of the alliance is to connect Kansas City residents with their urban and community forests through participation in volunteer projects.

#### Internships encouraged diversity, aided students and MDC

Our stewardship of Missouri's fish, forests and wildlife carries the responsibility of sustaining these natural resources not only for current generations, but for future ones, as well. It also carries the need to recognize that future generations likely will represent a vastly different population which reflects many cultures and backgrounds. MDC has a long-standing commitment to understanding the needs of Missouri citizens and accepts the challenge of staying in tune with our diverse stakeholders. One way to remain focused is through various diversity outreach programs.

MDC began its third year of a very successful internship program which creates experiences for students in the area of conservation, while addressing recruitment needs of MDC. Objectives are threefold: expose students to a variety of professional tasks and MDC's culture; mentor promising students in disciplines in which job candidates are scarce; and attract students with diverse cultural backgrounds to contribute to MDC's workforce and mission accomplishment. Internships are provided at both the undergraduate and graduate levels, and length of internships typically run concurrently with college semesters or summer breaks. Acceptance for an internship requires a minimum of a 2.8 GPA for undergraduates and a 3.0 for graduates and the successful completion of MDC's interview process.

In FY06, 30 students worked in a variety of internship positions which were diverse in both location and job responsibilities. The 30 students represented 17 colleges and universities and had a combined 3.5 GPA. Internship demographics included men, women, African-American, Hispanic, Asian, and people with disabilities.

#### New range opened in southwest Missouri

A shooting range opened on Ft. Crowder Conservation Area in June 2006 fulfilled a longtime request from citizens in the Joplin and Neosho areas. The range includes a 25-, 50- and 100-yard rifle range and a shotgun range for shooting clay targets.

#### Educational unit developed

The first educational unit, "Conserving Missouri's Aquatic Ecosystems" for sixth to eighth grades, was developed for the Learning Outdoor schools program. It will be piloted 2006-07.

#### Habitat-management workshops were popular with landowners

MDC staff conducted or participated in more than 300 individual events involving private-landowner habitat-management workshops. More than 24,000 people attended the workshops that focused on management techniques to benefit early successional wildlife species such as bobwhite quail, rabbit and grassland-bird species. Wildlife damage biologists gave 64 public programs on trapping and damage prevention to 7,465 participants. In addition to providing programs on conservation-related topics, the biologists regularly interact with statewide media.

#### Agents continued outreach efforts

Conservation agents represented MDC at 5,604 meetings to civic groups, schools, church groups and a wide variety of other organizations. Agents completed 14,153 radio and television programs, published 4,460 newspaper articles and conducted 1,431 public exhibits. As part of their community relations efforts, agents contacted almost 295,000 citizens and answered more than 119,000 telephone calls.

#### Study, regulation changes benefit anglers and hunters

Catfish harvest management: The Catfish Harvest Evaluation Project is a five-year statewide study that began in 2005 and is designed to provide information about the population dynamics, harvest, movement and nest success of flathead and blue catfish in selected Missouri rivers. MDC biologists are sampling catfish in segments of eight rivers throughout Missouri, sampling approximately 349 river miles by tagging fish with radio tags and \$25 reward tags that are returned by anglers. We are also studying flathead catfish nest success, spawning behavior and fecundity at one of MDC's hatcheries.

White-tailed deer management: Significant changes in statewide deer regulations have been put in place to simplify regulations and improve our ability to manage deer numbers. These changes include county level management, unlimited issuance of antlerless permits in most counties, four-point antler restriction, and an urban counties portion of the firearms season.

Recommended regulations for 2006 reflect a continuing effort to take large numbers of does, targeting counties where deer numbers exceed desirable levels. Proposed regulations include minor adjustments to achieve desirable harvests and improve hunter satisfaction.

**Hunting:** The Department has expanded opportunities for the more than one-quarter of Missourians who consider themselves hunters, while maintaining hunting as a high-quality experience that is beneficial to Missouri's economy. Unlimited antlerless deer permits for many counties, more no-cost any-deer and antlerless deer permits for resident landowners, the Managed Deer Hunt Program, and additional urban deer harvest opportunities help maintain deer populations at herd levels desired by landowners and hunters.

A new waterfowl-hunting drawing procedure at two wetland conservation areas provides more opportunity for waterfowl hunters, encourages novice hunters, and should more fully realize harvest-capacity potential. MDC has expanded the management of conservation areas to provide dove-hunting opportunities to more than 70 counties—increasing opportunities closer to home for many hunters. Youth-only portions of deer, turkey and waterfowl hunting seasons not only preserve family values related to hunting traditions, but create opportunities for youth to develop a strong personal connection to nature. Checking game harvest by telephone is also more convenient for hunters and allows for more efficient reporting of harvest totals.

# **Department of Conservation: Notable Accomplishments**

The accomplishments below affirm MDC's dedication to the three components of its mission statement:

# ❖ To protect and manage the fish, forest and wildlife resources of the state

# Coordinated and implemented inter- and intra-state, ecosystem-based management

Staff represented the state's fish, forest, and wildlife interests in various inter-state working groups to implement ecosystem-based management necessary for the conservation and enhancement of natural and recreational resources of the Missouri, Mississippi and White rivers. They helped direct the implementation of \$54 million available through the Missouri River Fish and Wildlife Mitigation Project, \$19.8 million available through the Mississippi River Environmental Management Program, and \$11 million available for planning efforts through the proposed Mississippi River Navigation and Ecosystem Restoration Plan (NESP). One NESP action included MDC participation in the development of fish passage projects at Locks and Dams 22 and 26 on the Mississippi River.

The agency staff participated in the intrastate Interagency Review Team (initiated by the U.S. Army Corps of Engineers) to propose stream mitigation guidelines in Missouri, building in both flexibility and consistency among the five Army Corps regulatory districts.

Staff responded to outside requests for information regarding Missouri's species and communities of conservation concern, primarily from those seeking to comply with the National Environmental Policy Act, Clean Water Act, and other federal and state laws, rules and regulations.

Staff coordinated the MDC's participation and response to federal and state environmental review processes, such as the National Environmental Policy Act, Clean Water Act and Endangered Species Act. Additionally, necessary permits and clearances for all MDC construction and resource restoration activities were obtained to comply with state and federal environmental laws and the National Historic Preservation Act.

#### Expanded fishing opportunities, research and recovery efforts

**Mississippi River walleye and sauger:** MDC initiated an assessment of walleye and sauger populations in the upper Mississippi River in fall 2005. More than 1,000 walleye and sauger were captured, and 255 were tagged and released. This five-year study will be expanded in 2006 to include all of the Mississippi River upstream of St. Louis, and will ultimately provide important information to better manage these popular sportfish.

**Increased trout-fishing opportunity:** One of the objectives in *A Plan for Missouri Trout Fishing* is to increase catch-and-release opportunities in the trout parks. With the cooperation of The James Foundation, the owners of Maramec Spring Park, the winter catch-and-release season at Maramec Spring was expanded from three days to seven days per week during the mid-November to mid-February season. The change to seven days per week for the 2005–06 winter catch-and-release season at Maramec Spring went smoothly and proved to be popular with anglers, and it will be continued. In addition, new winter trout areas were established at Liberty Park Pond in Sedalia and at Koeneman Park Lake in Jennings.

**Lake sturgeon restoration:** Lake sturgeon, first stocked in the Mississippi River in the 1980s, are just now becoming adults. MDC staff are learning about the movements and habitat preferences of these fish. Such information will be crucial to designing fish passage structures for Mississippi River dams to help fish move up and down river. Future efforts will focus on lake sturgeon diets, age and growth. We also will try to document spawning success, as well as continue to identify preferred lake sturgeon habitats.

Grotto sculpin recovery: We completed a variety of work to protect and raise public awareness of the grotto sculpin in the Perry County karst region. This included grotto sculpin population monitoring, dye tracing to track water movement within cave systems, use of water-quality monitoring equipment, cave mapping, development of a watershed plan and presentations to a variety of groups and news media.

Stream Stewardship Trust Fund: The Stream Stewardship Trust Fund is an in-lieu fee program created in 1999 to mitigate the loss of Missouri's stream resources. It is available to restore, enhance, and/or protect stream systems and associated riparian habitats. From its inception in 1999 until the end of FY06 more than \$2.4 million had been collected through the program. These funds are administered by the Missouri Conservation Heritage Foundation, and MDC staff apply for grants to use toward protecting Missouri stream resources. In FY06, five projects costing \$460,000 were approved to protect 44.5 acres of stream channel and 232 acres of riparian corridor. To date, \$1.9 million in funds have been allocated to 31 projects that offer protection to 183 acres of stream channel and 873 acres of riparian corridor.

Topeka shiner habitat protected: Protection and enhancement of habitat for the federally endangered Topeka shiner is the ultimate objective of a 30-year conservation easement, recorded in April 2006, on private farmland along Sugar Creek in Harrison County. The easement was acquired using funds from the Stream Stewardship Trust Fund and it will restore and protect more than 1.4 miles of natural riparian corridor along the stream and two spring-fed tributaries. Such protection directly contributes to objectives in MDC's action plan for Topeka shiners.

#### Lakes studied to benefit water quality and fishing opportunities

Hunnewell Lake water-quality project: MDC completed the first full year of water-quality sampling at Hunnewell Conservation Area in FY06. While the ongoing drought hampered stormwater collection efforts, valuable baseline data were collected before the application of effluent in the watershed. These data, coupled with the data from Hunnewell Lake, will be used to monitor the effects of effluent from animal-feeding operations on the lake's water quality.

**Panfish management:** We enacted regulations to improve the size of bluegill and crappie available to anglers. At Lake Wappapello and Robert Delaney Lake, we implemented a 9-inch minimum length limit on crappie. On General Watkins Conservation Area, we changed bluegill regulations to an 8-inch minimum length, with a daily limit of 10. We'll monitor these length limits to document the fish population improvements that we expect.

Jerry Combs Lake: This 150-acre lake had a few large bass and abundant, stunted bluegill. In an attempt to improve the quality of the fish community, we stocked adult largemouth bass at a rate of 25 per acre with fish purchased from a commercial dealer. Staff will follow this experiment closely.

#### Guidelines help MDC manage forests

MDC is revising and refining the way it manages forests. The Forest Land Assessment Guides identify multiple processes for evaluating and managing the diverse woodland and forest communities in Missouri. They are tools that will help natural resource managers develop insights on how to evaluate, understand and sustainably manage Missouri's forest and woodland communities. The guides incorporate adaptive management concepts and provide direction so that environmental, economic and social benefits are derived from sustainable forest management. Together with area plans, the guides provide a foundation for implementing the broad goals outlined in The Next Generation of Conservation.

#### Assisted NRCS in wetland restoration efforts

MDC has assisted the Natural Resources Conservation Service (NRCS) in obligating more than \$147.6 million since 1992 to restore wetlands back into the agricultural landscape. Wetland teams composed of MDC and U.S. Department of Agriculture staff completed restoration aspects on 55 Wetland Reserve Program easements. This accounted for 6,383 acres, which included emergent marsh and bottomland hardwood restorations during FY06. Missouri has recorded 740 easements which cover 107,471 acres.

#### Private landowners benefited from MDC's leadership and financial assistance

Private Land Services field staff provided private landowner financial assistance to support implementation of more than 10,700 acres of habitat-management practices. These practices targeted bobwhite quail, grassland songbirds and related early successional species. MDC continued implementation of a \$138,000 Conservation Partnership Initiative grant from the Natural Resources Conservation Service to restore bobwhite quail populations in targeted geographies. Staff provided leadership in the development of quail and grassland bird plans in each of the eight MDC regions.

#### New habitat buffers installed to benefit upland birds

The newest USDA Farm Bill program, the Conservation Security program, is resulting in some landscape-level changes in some of the most intensive agricultural landscapes in the state. More than 12,000 acres of native-grass field borders and more than 30,000 acres of rice-field reflooding are being installed through the program. The newest Conservation Reserve Program practice, CP33 Habitat Buffers for Upland Birds, has committed more than 18,000 acres of the 22,600 acres allotted to Missouri. Field staff report frequent sightings of quail and quail broods in and near the new buffers.

#### Wildlife Damage program continued active role

Collaborative efforts: The Wildlife Damage program maintains relationships and partnerships with agencies and organizations concerned with wildlife damage issues. These include the Missouri Trappers Association, USDA/APHIS-Wildlife Services, Missouri Department of Agriculture, Missouri Department of Natural Resources and the U.S. Forest Service.

Internally the program continues to assist Outreach and Education with the Cable Restraint program, Resource Science with otter research and other special projects. It also represents the division on internal committees such as the Nuisance Urban Goose Implementation Team, River Otter Task Force, Feral Hog Task Force and Mountain Lion Response Team.

Canada geese: The control of nuisance resident giant Canada geese continued to be a priority for the Wildlife Damage program during FY06. Operating under a federal permit, MDC coordinated activities to minimize giant Canada goose problems; 3,605 eggs were destroyed and 1,138 geese were euthanized or relocated.

Mountain lions: Wildlife damage biologists routinely respond to reports of mountain lions. MDC has made numerous investigations, held public meetings and made a determination that there is not a population of mountain lions in Missouri. Consequently, the Conservation Commission has reclassified the status of mountain lions in Missouri from endangered to extirpated to better reflect their existence in the state.

#### Brought code-violators to justice

Operation Game Thief and Forest Arson: Operation Game Thief/Forest Arson continue to be successful programs which help catch wildlife poachers and forest arsonists. The programs allow anonymous callers to report violations, and callers are eligible for rewards if arrests are made from their calls. Last year Operation Game Thief (OGT) produced 218 convictions from 482 telephone calls. This 45 percent arrest rate based on calls illustrates the high-quality of information from OGT callers and the investigative skills of conservation agents. In FY06, \$10,100 in reward money was paid to callers.

**Revocations:** Missouri is a participating state in the Interstate Wildlife Violator Compact (IWVC). The compact—a legal organization of 24 member-state wildlife agencies—agrees to reciprocally honor revocations/suspensions of hunting, fishing and trapping privileges for wildlife-related violations. During the last fiscal year 855 people from other states had their privileges revoked in Missouri through provisions of the compact. An additional 134 were revoked for cause by the Conservation Commission in Missouri and submitted to the IWVC. Participation in the compact also benefits Missourians who travel to other compact member states for hunting and fishing activities. If found in violation, they may be given the opportunity to resolve the citation by mail rather than being required to post a bond before leaving the member state. They are subject to revocation by all compact states if the citation is ignored.

#### Studied Missouri Ozarks stream crayfish and sport fish

Results from a study in the Jacks Fork and Big Piney Rivers show little to no change to stream crayfish communities or sport-fish diet patterns as a result of harvest regulation changes. Increasing populations of sport fish appear to be taking advantage of abundant and available crayfish, with no adverse effects to crayfish communities. Study results demonstrated that smallmouth bass, shadow bass and rock bass fisheries in Jacks Fork and Big Piney rivers are largely dependent year 'round upon the abundant crayfish communities. However, managers are advised that crayfish, and hence the fisheries they support, are susceptible to stream habitat degradation, and possibly to overexploitation, and should be monitored.

#### Learned lessons from the Missouri Ozark Forest Ecosystem Project

The Missouri Ozark Forest Ecosystem Project (MOFEP) is a landscape-scale, long-term experiment designed to study the impact of even-aged, uneven-aged and no-harvest management on flora and fauna in Missouri oak-hickory forests. Project components include determining the effects of forest management on bird, reptile and amphibian communities, small mammals, insects and vegetation.

MOFEP enables resource managers to use the knowledge gained through experimentation to adjust and improve their management systems during the course of the project. Results thus far suggest that harvesting did not adversely affect bird, amphibian, reptile or small mammal species, but it reduced insect herbivore diversity. Harvested sites had significantly higher overall species richness and ground flora cover, including soft mast, than no-harvest sites. Even-aged and uneven-aged management increased soft mast production. Harvesting decreased the amount of carbon stored. Uneven-aged management increased harvest damage. Armillaria species (root rot) are major contributors to Ozark forest decline. Economic benefits between even- and uneven-aged management were similar. Our understanding of the effects of management prescriptions on ecosystem components and the value of the data derived from MOFEP will grow as we continue to monitor studies in the long-term.

Effects of even-aged forest management on early successional bird species: The effects of different clear-cut sizes on species richness, abundance and reproductive success of birds were evaluated on the MOFEP study sites. Species richness was higher in larger clear cuts than in smaller openings, and size had a significant effect on relative abundance of four focal species: vellow-breasted chat, indigo bunting, white-eyed vireo and prairie warbler. There was no observed relationship between clear-cut size and reproductive success, but this study confirmed our observation that the rate of brown-headed cowbird parasitism is low on the MOFEP sites. The results of this study suggest that it is beneficial to have a variety of sizes of openings when designing forest management plans.

#### Studied fish response to floodplain connectivity in relation to a 500-year flood

We examined data collected on different age groups of fish during the 1993 flood in the unimpounded reach of the upper Mississippi River. This 500-year flood provided a unique opportunity to investigate fish-floodplain function because the main river channel is otherwise typically disjunct from approximately 82 percent of its floodplain by an extensive levee system. Fishes were sampled during three separate periods, and 42 species of adult and young-of-the-year fishes were captured. We found a distinguishable difference between both adult and young-of-the-year in the three floodplain types—broad, moderate and narrow. The findings suggest the timing of the floodpulse may confer differing benefits to native and non-native fishes and that floodplain quality influences where different age groups of fish can be found. Further, lateral connectivity of the main river channel to less degraded reaches of its floodplain (e.g., broad with little to no levee constriction) should become a management priority not only to maintain faunal biodiversity but also to potentially reduce the impacts of non-native species in large river systems.

#### Identified important issues at shortleaf-pine meeting

At a shortleaf-pine restoration planning meeting, the following issues were identified as high priority (in order of priority):

- 1) Establishment and recruitment of shortleaf pine
- 2) Education/marketing of shortleaf-pine community restoration
- 3) Evaluate canopy density and understory response of shortleaf-pine-communities
- 4) Gather existing knowledge and publicize the results from past investments
- 5) Evaluate effects of prescribed burning on trees, including the economic impact of fire-induced damage to trees
- 6) Undertake studies of genetics and improvement of shortleaf pine

The planning process will: 1) ensure that future research projects will focus on the important issues; 2) explore opportunities for cooperation among resource managers and scientists, and among scientists of different disciplines; 3) give all participants a common understanding of the priority issues; and 4) facilitate communication between resource managers and scientists from different disciplines.

#### Natural Communities benefited from programs and management

We are emphasizing the restoration and management of productive natural communities that benefit the full range of MDC programs and Missouri landscapes. Our programs and actions promoted the establishment of native-plant communities which enhance wildlife diversity and ecosystem restoration. We managed habitat on 19,569 acres of grassland/prairie, 31,854 acres of marsh/wetlands, 167 acres of glades, 64,745 acres of forest, 2,060 acres of savannas and 10,483 acres of old field. We also enhanced or created 132 miles of edge. We planted more than 59,011 trees on MDC areas. Crop land management (64,014 acres) for certain wildlife species and timber harvest—to achieve desired vegetative conditions, restore natural communities and/or demonstrate appropriate stewardship activities—were important area management activities. Through the Missouri Natural Areas program, 86 natural areas (30,487 acres) on MDC lands have been designated as models for natural community restoration. MDC manages an additional 18 natural areas (2,839 acres).

#### Older wetlands upgraded

Golden anniversary wetland initiative: An interdisciplinary team of wetland experts continues to develop plans for rehabilitation of five of MDC's oldest wetland management areas (Fountain Grove, Duck Creek, Montrose, Schell-Osage and Ted Shanks). We completed rehabilitation at Fountain Grove and scheduled work for Duck Creek. We replaced—due to age—some of the levees, pipes, pumps, flood valves and other structures critical to managing these wetland areas. We've also completed preliminary plans for additional rehabilitation of management structures on the remaining wetlands. We've established a diverse assemblage of conservation partnerships necessary to secure federal grants. Our collaboration with Ducks Unlimited, for example, yielded three large North American Wetland Conservation Act grants for wetland restoration.

#### Invasive species coordination became integrated

The coordination of invasive and exotic species control has been integrated into agency wildlife diversity programs through the hiring of an invasive species coordinator. In an effort to address threats to all varieties of native plants and animals, we will coordinate agency activities—to encompass both terrestrial and aquatic nuisance species. We have identified internal and external partners interested in invasive species control. We also have developed annual training for industry, the public, partners and agency personnel related to recognizing and reporting invasive species; more training is planned. We've also identified funding sources that will help further the goals of invasive species prevention and control in Missouri.

## \* To serve the public and facilitate their participation in resource-management activities

#### Identified, tracked and analyzed public opinions and needs

We compiled, interpreted, applied and presented economic, demographic, public opinion, participation and human dimensions survey information to provide the Conservation Commission, MDC staff, elected officials and the general public with insight into Missourians' expectations and satisfaction with the state's fish, forest and wildlife management. This information was the foundation upon which the MDC's new strategic plan was developed.

#### Initiated new recruitment system

The MDC Web site is viewed by a large number or people, many of whom may be interested in and qualified for natural resource positions. As a result of the site's usage and the idea it could be a natural recruitment base, we developed and implemented an HR on-line recruitment system. This new application takes advantage of the Web site's popularity by listing positions being recruited and allowing the public to complete an electronic application. HR personnel post open positions, which include the duties and responsibilities, minimum qualifications, core competencies and special ability requirements. The system allows supervisors to remotely view applications and select the candidates they want to interview. It generates electronic or paper correspondence to notify applicants of their status, and also provides HR personnel the ability to track job applicants, generate reports and provide valuable statistical data regarding applicants.

#### Forest-fire reporting streamlined

We developed a forest-fire reporting interface for rural fire departments. They report their fire fighting participation directly into MDC's system through the public Web. This system provides information to the federal government about the number of natural cover fires, acres burned, and value of property destroyed.

#### Provided staff and equipment assistance in several disaster relief/response situations

The MDC's promise to serve the public extends beyond our traditional goal to provide exceptional customer service. Equally important are our activities instrumental to the safety of our stakeholders and employees, and our responses to catastrophes within and outside our state borders. During FY06, we assisted in several disaster relief/response situations—Hurricane Katrina, Taum Sauk reservoir failure and violent spring storms.

Hurricane Katrina: On the 2005 Labor Day weekend, the State Emergency Management Agency (SEMA) contacted MDC to request assistance for Hurricane Katrina rescue and recovery in Louisiana. MDC sent 16 conservation agents with boats to New Orleans for a one-week stay to help residents in the still-flooded downtown area.

Taum Sauk reservoir failure: In December 2005, we responded to the Taum Sauk reservoir failure in Reynolds County. We used our aircraft to fly over the area, report on conditions and transport those needing to evaluate the site. We staffed the State Emergency Operations Center and provided ground assistance to SEMA, DNR, Highway Patrol and local law enforcement officials.

**Other disasters:** In spring 2006, we responded to disasters in various locations throughout the state. We helped with road cleanup in Laclede and Newton counties, assisted the Wright County sheriff with evaluation of roads and damage to structures; and assisted in southern Randolph County. Agents were assigned to overnight security details in Braggadocio (Pemiscot County) and MDC's helicopter was used to fly SEMA and FEMA personnel to inspect damage in the county.

#### Workplace accidents reduced

We also worked toward an accident-free workplace. Through the efforts of an internal safety coordinator, regional safety committees and individual employees and supervisors, we have achieved a 50 percent reduction in the rate of injuries per 100 employees from 9.43 in 1995 to 4.62 in 2006. This 4.62 rate is also below the State of Missouri rate of 7.07 injuries per 100 employees. During FY06, 105 personal injuries, 99 vehicle incidents, and 86 public mishaps were reported at MDC.

#### Provided lake and stream guidance and training; awarded grant to watershed landowners

**Private stream- and lake-management assistance:** Our fisheries staff responded to approximately 7,000 requests for watershed, floodplain, riparian corridor and stream or lake management information and technical assistance on streams or lakes. We made more than 1,300 on-site visits and wrote 300 recommendation letters or management plans. On-site work included more than 275 fish population surveys, 325 stocking inspections and 50 fish-kill investigations. Staff conducted 23 stream or lake management workshops attended by 900 people. We also developed nine stream demonstration areas on private property and performed maintenance on 11 existing areas.

Maries River Watershed awarded \$85,000: We worked closely with the U.S. Fish and Wildlife Service to bring the Maries River Watershed Committee an \$85,000 Private Stewardship Grant (PSG). These funds will be available to watershed landowners for providing cattle clean drinking water, planting riparian corridors, building stream crossings, stabilizing streambanks and planting warm-season grasses and forbs. The grant pays 90 percent of the cost of these projects. Making the PSG dollars stretch is one of the committee's goals, and through the use of existing federal and MDC funds, the PSG could be leveraged up to \$170,000 available for cost-share on stream improvement practices.

#### Missouri forests aided by MDC-supported volunteers

Missouri Forestkeepers Network: MDC collaborated with Forest ReLeaf of Missouri to support statewide recruitment and coordination of volunteers participating in the Missouri Forestkeepers Network. The Forestkeepers program is a volunteer, self-driven network of those interested in forest and forest monitoring. Volunteers worked more than 19,500 hours on a variety of activities.

Wildland fire-suppression training and the Midwest Wildfire Training Academy: MDC supports volunteer fire departments in many ways. One way in particular is by providing wildland firesuppression training to fire departments throughout the state. We conducted 32 sessions and trained more than 750 local firefighters in fire behavior, suppression techniques and safety at no cost to the fire departments or the volunteers. In addition, we also provided instructors and logistical support for the Midwest Wildfire Training Academy held in Jefferson City each year. This academy draws thousands of participants from throughout the state and the Midwest.

#### Contractor-training workshops rated high marks

In cooperation with the Missouri Agriculture Industries Council (MO-AG), MDC developed a series of Conservation Contractor-Training workshops to assist habitat contractors with implementation of privatelandowner conservation plans. Eight workshops throughout the state drew 371 participants. More than 95 percent said they were very satisfied or somewhat satisfied with the training provided.

#### Gave landowners access to habitat-enhancement tools; maintained outreach to producer groups

Private Land Services worked with Soil and Water Conservation districts and related conservation partners to purchase 10 native warm-season grass drills for use in key MDC geographies for bobwhite quail and grassland songbird habitat efforts.

Private Land Services provided financial support and participated in many of the major agricultural conferences and trade shows throughout the state. Among them were the Governor's Agriculture Conference, Farm Bureau Annual Conference, Missouri Cattlemen's Annual Conference, the Missouri Association of Soil and Water Conservation Districts Annual Training Conference, Agricultural Leaders of Tomorrow, and the Farm Bureau, Young Farmers and Ranchers Annual Conference.

#### Programs assisted disabled hunters and anglers

**Hunting Method Exemption and Group Fishing programs:** Both the Hunting Method Exemption program and the Group Fishing program are designed to assist disabled hunters and provide opportunities for educational or rehabilitation groups to experience fishing. During the last fiscal year, we issued 4,820 hunting method exemptions to help disabled hunters enjoy Missouri's outdoors. We also issued 218 group fishing permits to help Missourians who otherwise might not be able to participate and learn about outdoor fishing activities.

#### Hunter education courses certified 26,000 students

Hunter education certification is required for purchasing any type of Missouri firearm hunting permit for people born on or after Jan. 1, 1967 (except the youth deer and turkey hunting permit). Conservation agents work with outreach and education division personnel and approximately 2,000 volunteer instructors to coordinate hunter education courses in all 114 counties. Protection Division personnel are also heavily involved in investigating every hunting incident in the state. During the last fiscal year, agents helped hunter education volunteers certify more than 26,000 hunter education students. Missouri is a safer place to hunt as a result.

#### Dove Agroforestry Project benefits private landowners and doves

The Dove Agroforestry Project is a broad-scale cooperative venture with the University of Missouri's Center for Agroforestry, University of Missouri School of Fisheries and Wildlife Sciences, the U.S. Fish and Wildlife Service—Webless Migratory Game Bird Research Program and the Missouri Department of Conservation. Knowledge generated from this project will:

- 1. guide management decisions for private landowners combining agroforestry practices and managed dove hunting fields,
- 2. provide information about relationships between observed recruitment from radio marked doves and fall age-ratios from hunter-killed doves.
- 3. compare actual and reported crippling rates during the hunting season, and
- 4. provide information on harvest rates on a heavily harvested local population of mourning doves.

Accomplishments from the first field season include: 1,448 trees planted, 152 subcutaneous transmitter implant surgeries conducted in the field, 25 nests located by following movements of female mourning dove implanted with subcutaneous radio transmitters, 10 nestling surgeries conducted to implant subcutaneous radio transmitters, 57 mortalities or dropped transmitters noted (not including birds killed during first three days of the hunting season), more than 2,000 locations from radio-marked doves recorded, 738 mourning doves banded and 212 recaptured, and an automatic data collection system was designed and implemented.

Thirty-nine birds with radio transmitters were detected on opening day of the hunting season; the next day 10 were shot and recovered and two were crippled and located. In all, and 26 radioed doves were killed during the first three days of the season.

#### Acorn production measured

Annual mast survey: Each year forestry staff conducts an oak mast survey, which provides an index to the availability of oak mast and indicates what is in store for mast-dependent forest wildlife during fall and winter. Poor mast years have been shown to result in lowered reproductive success and reduced numbers of mast-dependent forest wildlife. In 2005, forest resource managers surveyed 5,090 oak trees of which 2,583 were in the red oak group and 2,507 in the white oak group. The composite oak mast index was 152, a figure well above the 45—year long-term average of 133 and the 2004 index. The composite mast index was 14 percent above the long-term average, and 31 percent above the 2004 index. The overall red and white oak group mast indices were similar. The overall red oak group index was 12 percent above the long-term red oak average, and the white oak group was 18 percent above the long-term white oak

average. The overall red oak group index was 33 percent above the 2004 index, and the overall white oak group was 30 percent above the 2004 index. In conclusion, mast production was good last year.

Variation among years for acorn production: The objectives of the acorn-production study are to use the long-term mast survey data to estimate species-to-species and year-to-year acorn production in the selected state forests and to determine if climatic factors account for the year-to-year variation in acorn production. Over the 45-year period from 1960-2005, red oaks had a higher average mast production than white oaks. Variation in mast production was considerable among years in red and white oaks. There were no regular masting cycles observed in both the red and white oak groups. Poor mast years occurred frequently, and occasionally, they occurred in successive years. The interval between good masting years ranged from one to 10 years in white oaks and one to seven years in red oaks. Generally, red and white oaks appear not to mast in synchrony. In red oaks, current mast production was positively correlated with spring rainfall two years prior, but negatively correlated with maximum temperature in winter two years prior. In white oaks, current mast production was positively correlated with spring maximum temperature in the same year. The study suggests that the impact of weather is through flower initiation and pollination rather than acorn development.

#### Studied effects of timber harvesting on water quality

While it is generally believed that forest harvesting adversely impacts stream water quality, the impacts are highly variable and much of this variability is attributable to differences in site conditions including soils and topography, as well as differences in harvesting methods. This suggests that the effects of harvesting on stream water quality are region- or site-specific, and thus cannot be generalized. The overall objective of this study is to test the efficacy of MDC's current best management practices during timber harvesting and to provide an understanding of the processes in ephemeral streams adjacent to harvested areas. From 15 field sites, 384 water samples were collected; about half were from in-stream monitors and half were from hillslope monitors. The water samples were used to establish preharvest water-quality concentrations for 12 water-quality parameters. During the last fiscal year, we collected water samples from about six precipitation events, maintained and updated the in-stream and hillslope sampling devices, and coordinated the timber harvest schedule with the district foresters. Three draft papers are in preparation: 1) physical environment of low-order watersheds in the Missouri Ozarks; 2) field instrumentation performance for water sample collection; and 3) background water quality in ephemeral streams in Missouri Ozark highland forests.

#### Outreach/incentive efforts involve public in fish, forest and wildlife stewardship

Connecting the public to fish, forest and wildlife resources: MDC continues to focus efforts on ways to inform peers, cooperators and citizens about wildlife stewardship. Wildlife Division staff made nearly 504 farm-plan contacts and 120 incentive-program contacts with private landowners. The Landowner Incentive program assumed a much greater role in benefiting endangered species on private lands by providing state and federal assistance payments and providing technical support in a timely manner. Wildlife Division conducted 191 workshop/program events. Division staffers also responded to 402 contacts regarding wildlife damage issues, offered assistance to 487 residents of urban communities, and had almost 38,164 additional contacts with the general public. In addition to 95 media contacts and presentations, staff developed Missouri Conservationist magazine articles and management leaflets, participated in Missouri Outdoors programs, provided input on weekly statewide news releases, and updated MDC's Web site. They also organized and conducted quail-related public meetings, grassland-management workshops, public surveys and public forums designed to help MDC develop citizen-led efforts to conserve fish, forest and wildlife resources throughout the state.

Bird conservation initiatives: A variety of conservation partners, who are promoting "all bird" conservation in Missouri, have established common goals and strategies for data collection, monitoring and evaluation. By providing matching funds, the Missouri Bird Conservation Initiative (MoBCI) Grant program funded projects from many different organizations and partners. MoBCI represents a broad range of interests which include game and non-game bird species. Forty-one conservation-oriented organizations and four private citizens have contributed funds to this voluntary partnership of diverse groups.

An All-Bird Conservation Team helped coordinate bird-related initiatives such as Partners in Flight, Northern Bobwhite Conservation Initiative, North American Waterbird Conservation Plan, North American Waterfowl, Management Plan and the U.S. Shorebird Conservation Plan. MDC helped Missouri Audubon develop Important Bird Areas, which is the National Audubon Society's part of an international effort to identify and conserve the areas that are the most important for sustaining bird populations. MDC provided matching funds for a director of bird conservation who works on various cooperative projects identified through the Important Bird Area program. MDC provided partial funding for a National Wild Turkey Federation regional biologist to focus on building cooperative habitat management partnerships, enhance conservation program delivery to private landowners, and restore critical habitats such as glades and savannas.

## \* To provide opportunity for all citizens to use, enjoy and learn about fish, forest and wildlife resources

#### Publication will highlight accessibility features of MDC areas

MDC's mission carries the expectation that all citizens are given the opportunity to use, enjoy and learn about fish, forest and wildlife resources. This expectation underscores how important it is for us to understand area accessibility issues and provide information regarding accommodations. Since we have more than 250 conservation areas, owned or leased, that have at least one ADA (American with Disabilities Act) facility, dissemination of accessibility information is a major task. Additionally, the term "facility" includes not only buildings, but other elements such as trails, hunting and viewing blinds, fishing docks and ramps and shooting ranges.

Last fiscal year (FY05), we began the process of updating area accessibility information with the intent of publishing data in a single document. During FY06, significant accomplishments were made toward this goal. Information, previously gathered from three databases, was internally validated. The validation required two different reviews by agency staff to ensure the most current and accurate information was described. We then completed extensive work on the physical presentation of information so it appeared in an attractive, understandable and user-friendly format. The resulting publication was sent to permit vendors and MDC offices in October 2006.

#### Helped thousands learn how to participate in and enjoy fishing

Angler recognition programs: MDC recognized 1,721 anglers for catching their first fish with a First Fish Certificate. We issued Master Angler Awards to 536 anglers who caught large game fish that equaled or exceeded minimum size requirements. We also issued four new state records to anglers who caught fish that exceeded the recorded maximum sizes known for a given species in Missouri. These included a 5-pound black crappie that also was certified as a new world record by the International Game Fish Association.

Making fishing information more accessible: Efforts to improve fisheries content on the MDC's Web site continued in FY06. We added a new section on smallmouth bass, new lake maps and new profiles for 65 species of Missouri fish. Interest in the expanded Statewide Weekly Fishing Report continues to grow; we send an electronic copy to more than 11,000 subscribers each week of the fishing season. We also maintain a library of about 180 fisheries publications and produced 30,000 copies of the popular guide "2006 Fishing Prospects at Selected Missouri Lakes and Streams."

**Kids' Fishing Days at the trout parks:** For the fourth consecutive year, a record for attendance was set for Kids' Fishing Day (KFD) at the trout parks. Based on the number of free daily tags given to youngsters 15 years of age or younger, combined attendance at the May 2006 KFDs held at Bennett Spring, Maramec Spring, Montauk and Roaring River was 5,038. Bennett Spring, Montauk, and Roaring River set new park records for their May 2006 KFDs, while Maramec Spring came close to matching its record set in 2005. A review of the numbers confirms the popularity of the KFD program, and the consistent upward trend in participation seems to indicate a healthy and growing interest in getting youngsters out to enjoy angling and related activities.

Mobile aquarium: The Show-me Missouri Fish-Mobile Aquarium program reached an estimated 1,148,115 Missourians who attended one of the 20 events where the aquarium was featured. Scheduled demonstrations about fish or fishing are held periodically at each event and these attracted an estimated audience of 34,323. The aquarium was displayed for 94 days in seven of the eight MDC regions.

#### Fishing opportunities enhanced by management study, hatchery production and stocking efforts

Catfish harvest evaluation project: In 2005 we initiated a five-year catfish harvest management study to learn about flathead and blue catfish ecology and population dynamics in Missouri streams. During 2006, more than 11,000 catfish were captured, and more than 2,600 were tagged and released; it is the largest such study ever conducted. We also initiated studies of catfish spawning and movement behavior during 2006. Monitoring population and size—class changes and catfish behavior will provide better information to manage these popular sportfish.

Banner year for warmwater fish production: Warmwater hatchery production at Chesapeake, Lost Valley and Hunnewell hatcheries exceeded expectations for several species. Staff at Chesapeake hatchery produced in excess of 1.2 million channel catfish-enough to meet stocking needs in Missouri and fulfill our agreement with Iowa to receive muskellunge in exchange for channel catfish. Lost Valley Hatchery produced more than 3 million walleye fry and more than 1 million walleye fingerlings, as well as 380,000 hybrid striped-bass fingerlings.

**Urban fishing opportunities:** MDC strives to provide high-quality fishing opportunities for all Missourians, including those living in urban areas. During 2005, approximately 150,000 keeper-sized fish were stocked in 56 urban fishing impoundments. This included more than 90,000 channel catfish, 50,000 rainbow trout, 4,900 carp and 4,600 brown trout.

#### Outreach programs brought attention to forestry resources

Missouri Arbor Award of Excellence: MDC and the Missouri Community Forestry Council jointly sponsored the Missouri Arbor Award of Excellence program. This program recognizes communities throughout the state that act as good stewards of their tree resources. Award categories include municipalities/governments, organizations, businesses and individuals.

Professional timber harvesters program: MDC, in partnership with the Missouri Forest Products Association, is working with industry to develop and promote sustainable harvesting techniques. Through the program, loggers receive training in Best Management Practices (BMPs), forest ecology, more efficient harvesting techniques and sustainable forest management concepts. The goal of the program is to provide healthy and sustainable forests, increase wildlife habitat and contribute to local economies by supporting forest-products industries.

#### Helped millions of citizens discover, use and enjoy outdoor Missouri

Nearly a million people experienced the programs, trails and facilities at conservation nature centers and shooting range/outdoor education centers throughout the state. Another 26,073 hunter education students were certified this past fiscal year, so the millionth certified student is expected in late 2006. Conservation education staff directly worked with more than 1,100 public, private and parochial schools throughout the state. Grants helped 271 Missouri schools provide conservation field trips and 56 schools develop outdoor classrooms.

The Missouri Naturalist program grew to six chapters throughout the state, with 199 participants completing the course since the program began. Missouri master naturalists have contributed 7,300 hours of service valued at more than \$128,000.

The first Grow Native! Challenge took place in Columbia to highlight native-plant use in the home garden. Future challenges are planned in the St. Louis and Kansas City areas. Grow Native! monthly plant classes were begun and quickly filled at Shaw Nature Reserve near St. Louis, while workshops on native plants were held at several Conservation Nature Centers.

Interest in the MDC Web site continues to grow—more than 2.6 million unique viewers visited www. missouriconservation.org.

The free Missouri Conservationist magazine provided an average of 510,000 subscribers each month with a wealth of stories on our fish, forests, wildlife and the people who enjoy and sustain them. Other outreach efforts include television and radio programming, news releases of the production and distribution of hundreds of print publications. New book productions include the "Trees of Missouri" field guide and "Show-Me Bugs," a colorful guide to 50 of the state's most interesting bugs.

New DVD productions include a series on how to manage land for wildlife, as well as a guide to planting and pruning trees. A new audio CD, "Echoes of Missouri," features natural sounds from Missouri's streams, prairies and more.

Wild turkey season extended: To provide increased hunting opportunity, the 2005 fall firearms turkey season was lengthened from two weeks in mid-October to the entire month of October. The fall 2005 harvest was 13,233 birds-a 12 percent increase over last year. The 2006 spring turkey season again topped the 50,000 mark. The 2006 (including the 2-day youth season) spring harvest was 54,712 birds, down 5 percent from 2005's harvest but still the seventh largest in the 47-year history of Missouri's modern turkey season. Unfavorable weather for hunting and below-average reproduction for the past four years held down this year's harvest.

This past spring we conducted a series of informational lectures/presentations in southern Missouri. The intent of the presentations was to explain our turkey management program—including season timing, opening dates and harvest structure. Based on this public input, the new opening date formula was changed to balance hunter desires with the biology of turkey reproduction.

Waterfowl biology and harvest 2005-06: Hunting conditions, duck abundance and hunter success were highly variable during the 2005-06 waterfowl season. Habitat was primarily limited to public and private areas with water pumping capabilities. Mild and dry conditions challenged hunters early in the season. Significant migration events in mid and late November improved hunting; however, soon after peak numbers of ducks arrived, cold weather and ice limited hunting opportunity. Warmer temperatures returned in late December and January providing good hunting for those who persevered. Numbers of hunters participating in the 2005-06 season (28,700 vs. 2001-05 average of 29,000), trips per hunter (7.7 vs. 2001-05 average of 7.7), and average daily success (2.10 vs. 2001-05 average of 1.80) combined to result in a 2005-06 duck harvest of 447,700, up from 2004 (322,700), and within the range experienced during the last nine years of 60-day seasons (217,300-515,100). Approximately 17 percent of the statewide harvest occurred on Department managed wetlands, similar to the 1988–1997 range of 12 to 17 percent.

After returning to regulations less restrictive than in 2004, and similar to recent years, more goose hunters went afield (14,584 vs. 12,004 in 2004), and they harvested more geese (51,800 vs. 39,535 in 2004). The 2005-2006 harvest was within the range of the last five years (39,500-76,300). During the 2005-06 regular season, 5,800 hunters harvested 23,700 light geese, which was similar to the estimated 29,700 light geese (lesser snow and Ross's geese) harvested in 2004-05. Harvest estimates for the 2006 Conservation Order are not yet available.

Water-quality attitudes, awareness and actions of residents in the Hinkson Creek watershed: Residents of increasingly urbanized landscapes can often be disconnected from the natural world and unaware of what, if any, impacts they and their activities may have. Using focus groups, landowners' and homeowners' attitudes, awareness and actions regarding water quality in the Hinkson Creek watershed were explored. Hinkson Creek in Columbia and Boone County is listed as an impaired streams, according to the 1998 Clean Water Act. Sixty residents shared their views on watersheds, water quality, and what they felt were problems and ways to improve water quality in their area. In addition, their attitudes on regulatory matters such as zoning and what they would like governmental agencies to do in urban areas to improve water quality were explored. The information gathered from these focus groups was used to develop a mail survey that will be sent to a random sample of residents in the watershed in May. Initial results will be compiled by fall 2006.

Streambank erosion control: A project was initiated to examine potential bank stabilization techniques in the hopes of providing landowners with more options for stabilizing streambanks. Steps developed for selecting and evaluating potential techniques are:

- establish review process for techniques
- select techniques for evaluation
- select test locations (MDC land) and install projects
- monitor results after high-flow events
- evaluate performance of techniques using an adaptive approach
- recommend techniques to landowners

Two projects have been constructed: a log weir and a farm rock weir; both were constructed on Jakes Creek on Lead Mine Conservation Area in Dallas County. Monitoring will consist of a physical survey of the bank, a GIS map, photopoints, flow monitoring, and cost of the project. Final evaluation of a technique will be based on performance at each site.

Forest Health Program: The Forest Health Program monitors the health of Missouri's forests and provides information to assist Missourians in maintaining healthy trees and forests. Staff investigate major forest damage, such as insects, diseases and abiotic causes, and then provide management recommendations for private landowners and public land managers. Surveys to detect possible introductions of invasive species such as the gypsy moth and emerald ash borer are conducted annually in cooperation with the other government agencies. MDC placed and monitored more than 4,900 gypsy moth traps in 27 counties during the past year and provided GIS and data management services to other cooperating agencies. In response to the emerging threat from emerald ash borers that are killing ash trees in parts of the Midwest, an annual survey of state parks, commercial campgrounds, and recent urban developments was initiated to detect this new pest. Thirty-one sites were surveyed in July-August 2005. No evidence of emerald ash borers has been found in Missouri.

Forest health information is provided to the general public, private landowners, forestry professionals and MDC staff through a diagnostic laboratory, workshops, training sessions, newsletters, and various other print and electronic media.

Serving nature and citizens on conservation areas: MDC provides public facilities on conservation areas that are clean and well maintained so our area visitors can have a safe and enjoyable outdoor experience. While MDC public areas provide places where citizens may hunt, fish and enjoy nature, they also encompass lands that are specifically managed as the best examples of natural community types or vital habitats for endangered plants and animals. MDC manages more than 1,000 areas with a balance between providing diverse outdoor recreational opportunities and actively conserving plants, animals and their habitats.

To encourage visitors, each year we develop new or improved facilities such as parking areas, restrooms, trails, disabled-accessible hunting blinds, and wildlife viewing platforms. We've also developed and strengthened relationships with nearby landowners and other neighbors adjacent to conservation areas through personal visits, open houses, offers of technical support, and other forms of personal interaction. MDC sets conservation area deer-hunting regulations in ways that provide a range of hunting opportunities for hunters, do not over-harvest the deer herd, and ensure that deer populations do not create problems for neighbors.

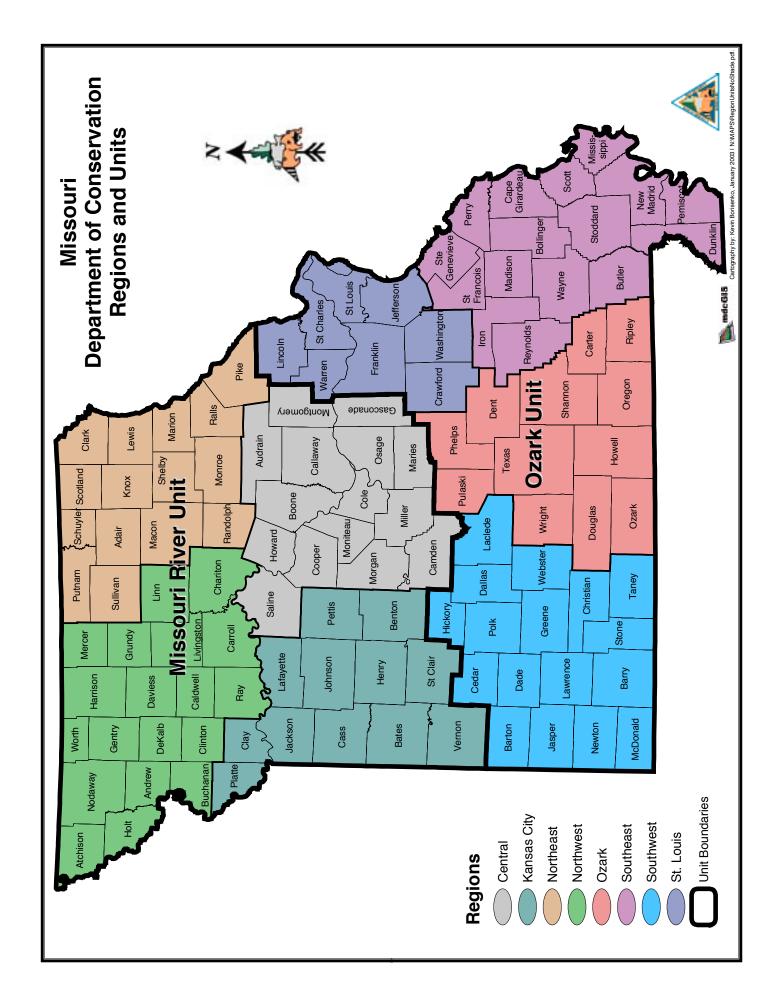
#### Efforts converted right-of-way to native plants

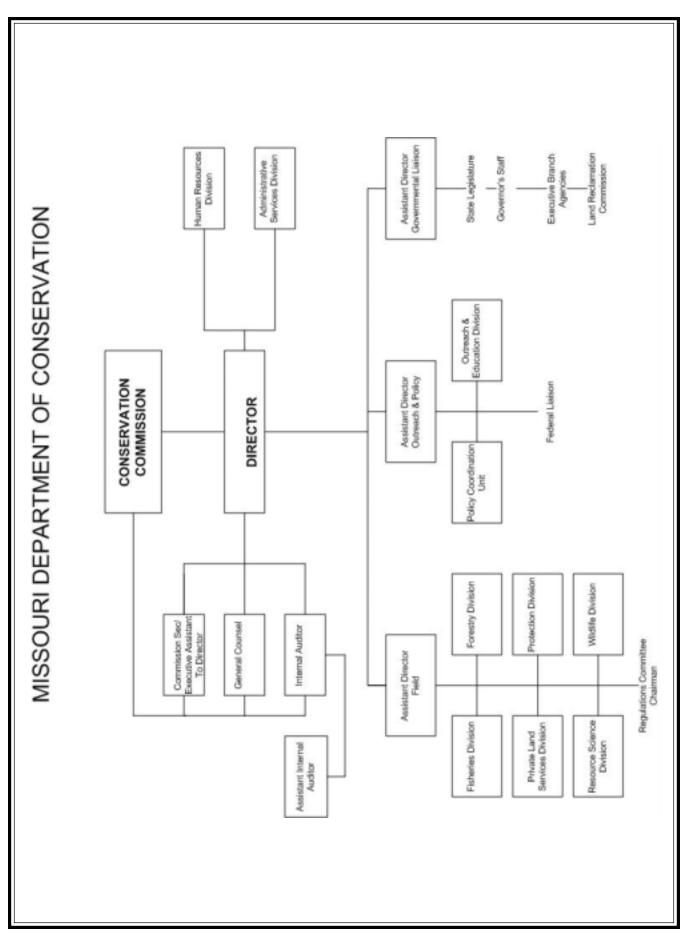
Through a cooperative agreement with the Missouri Department of Transportation, MDC facilitated the conversion of 365 acres of highway right-of-way from introduced, cool-season grasses to a diverse mixture of native warm-season grasses, forbs and legumes.

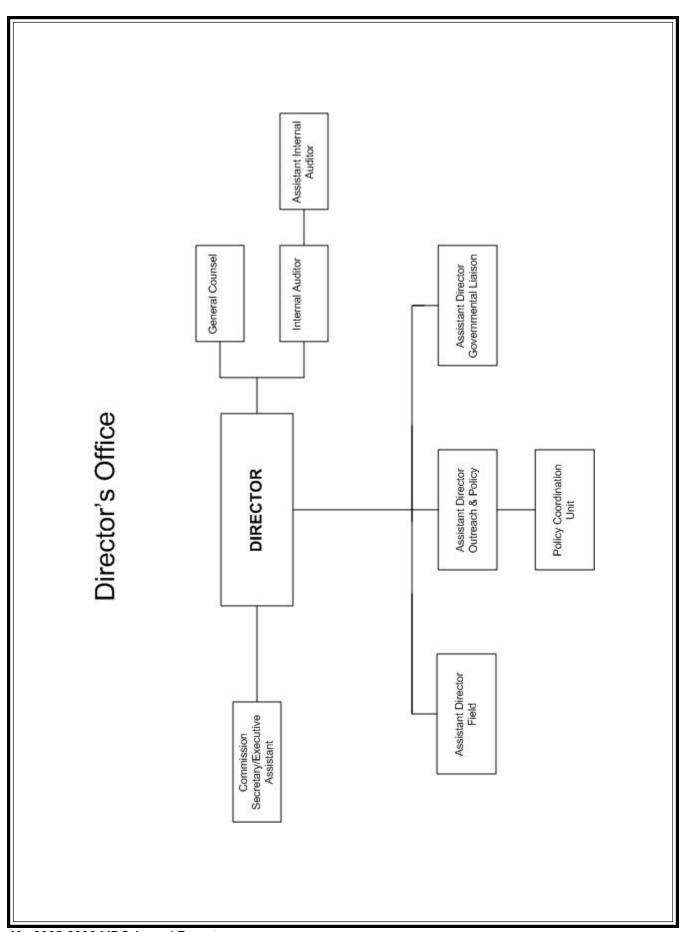


# **Organization and Administrative Descriptions**

- ▲ Department Regions and Units
- ▲ Department Organizational Chart
- ▲ Director's Office and Department Divisions







## **Director's Office**

### John Hoskins, Director

Director John Hoskins, appointed by the Conservation Commission, is the administrative officer of the Department of Conservation and directly oversees the four assistant directors, general counsel, internal auditor, Administrative Services Division administrator and the Human Resources Division administrator.

### John Smith, Assistant Director

Assistant Director John Smith administers field operations for MDC and directly oversees division administrators of Fisheries, Wildlife, Forestry, Private Land Services, Protection and Resource Science. He is also chair of the Regulations Committee, a standing committee that recommends statewide wildlife regulations to the Conservation Commission.

### Denise Brown, Assistant Director

Assistant Director Denise Brown is the MDC liaison with the Missouri congressional delegation and federal agencies, and directly oversees the Outreach and Education Division and the Policy Coordination Unit.

### **Bob Ziehmer, Assistant Director**

Assistant Director Bob Ziehmer is the MDC liaison with the state legislature, state agencies in the executive branch and the governor's office staff. He also represents MDC on the Land Reclamation Commission.

### Tracy McGinnis, General Counsel

General Counsel Tracy McGinnis is legal adviser to MDC staff, the director and Conservation Commission.

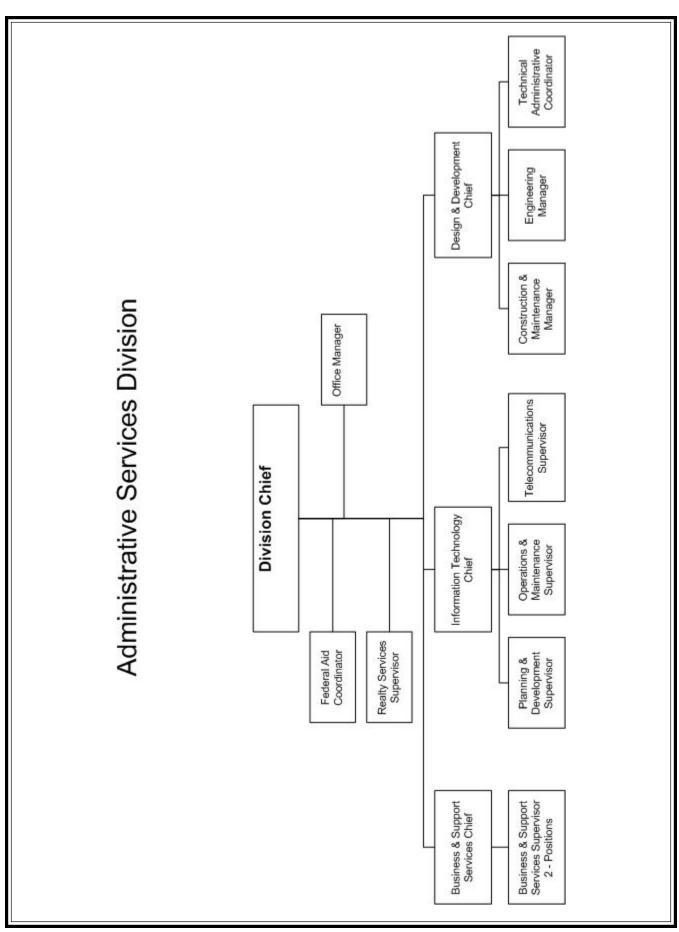
## Nancy Dubbert, Internal Auditor

Internal Auditor Nancy Dubbert serves MDC by independently analyzing MDC operations, policies, procedures, records and compliance with laws and regulations to ensure effectiveness and accountability. The internal auditor also is custodian of records and oversees the assistant internal auditor.

## **Policy Coordination Unit**

The Policy Coordination Unit serves the director's office and the agency by managing agency-wide, statewide, complex or sensitive issues. The team of 10 staff is supervised by Jane Epperson. Examples of services include:

- Coordinating intra- and inter-state forest, fish and wildlife resources associated with the Missouri, Mississippi and White rivers.
- Coordinating additions or revisions to the Area and Resources Management Policy and Procedures Manual.
- Obtaining necessary state and federal environmental regulatory permits and cultural resources clearances for statewide MDC construction and land management activities.
- Representing public forest, fish and wildlife interests by coordinating and providing comments or recommendations to federal agencies authorized to conduct environmental reviews and approve project permits.
- Responding to public requests for site-specific information regarding species and communities of conservation concern by providing comments or recommendations to minimize impacts.
- Coordinating public involvement activities including social and economic survey analysis, public-use surveys and regional citizen forums.
- Guiding MDC's strategic planning process.



## **Administrative Services Division**

*Mission:* To support and serve MDC staff and programs in a manner that promotes financial accountability, prudent use of MDC assets, infrastructure and technology, and development of services and facilities sufficiently to meet MDC responsibilities and public expectations.

Administrative Services Division fulfills its mission by serving MDC's internal and external stakeholders through the following sections that comprise this division.

Business and Support Services - This section provides a broad range of functions that support MDC's operations, while carefully managing the agency's assets, which have been entrusted to its care. Major functions this section oversees include: equipment management and maintenance, sign production, distribution center operations, automated permit distribution, managed hunt/special permit management, printing and mailing functions, aviation, revenue projections and management, internal and executive budget management, financial analytical support, fixed asset inventory, agricultural crop management, accounts payable and MDC's payroll.

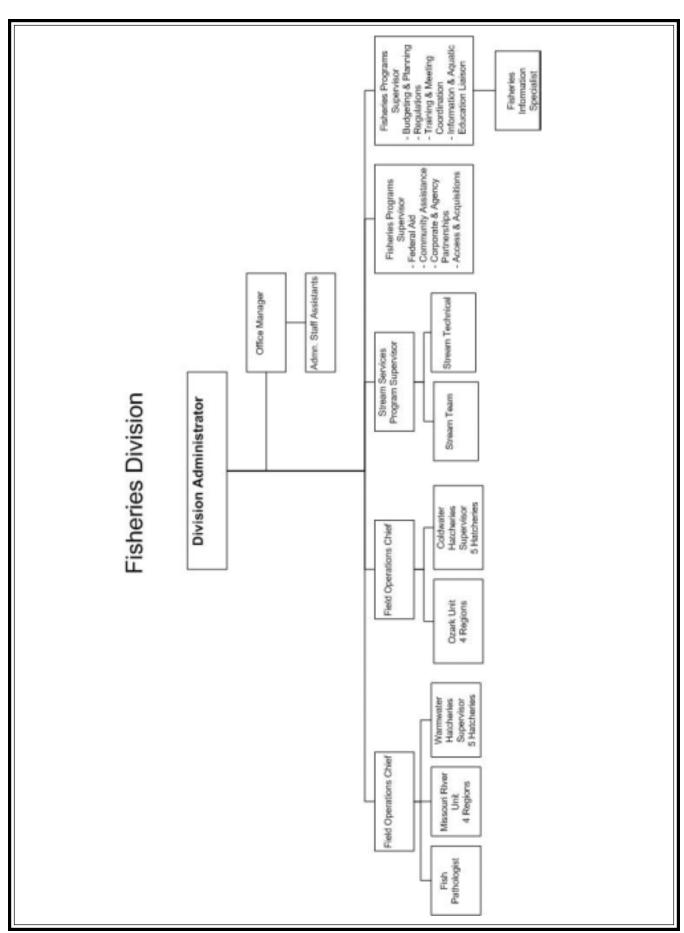
**Design and Development**—Programs performed in this section consist of engineering, architecture, construction/maintenance services, including design and construction of capital improvements projects; repair and renovation of MDC infrastructure; plus the maintenance of MDC areas and facilities.

**Federal Aid Coordination**—The federal aid staff is MDC's primary administrator of federal aid granting opportunities. Some of the agencies in which federal aid monies are obtained and managed include the U.S. Fish and Wildlife Service, U.S. Forest Service, Corps of Engineers, Environmental Protection Agency and Natural Resource Conservation Service. MDC's federal aid staff administers approximately 85 federal grants, with the most significant of these being the Sport Fish and Wildlife Restoration grants.

**Information Technology Services**—Communication responsibility for the entire agency is entrusted to this section. Better known as IT, employees provide a wide range of services which include data, telecommunications and radio system management, helpdesk operations, software support, network operations and application development functions.

Realty Services - Realty Services is responsible for handling the acquisition of all lands and land rights for MDC; resolving boundary, encroachment, trespass, or access issues on MDC areas; handling utility/ roadway easement requests; maintaining records of MDC's real estate inventory; and distributing annual in-lieu tax payments to Missouri's 114 counties.

Every effort is made throughout the Administrative Services Division to achieve its mission by maintaining the financial integrity of MDC and ensuring prudent use of MDC's assets; providing a broad range of high-quality support services to MDC's staff and programs; leading and facilitating the effective use of technology in MDC operations; coordinating and managing federal grants for the agency; acquiring and maintaining MDC equipment, infrastructure and land. By achieving the division's mission, we assist MDC in carrying out its constitutional mandate of protecting and managing Missouri's fish, forest and wildlife for the enjoyment of future generations.



## **Fisheries Division**

**Mission:** To professionally manage the fish and associated aquatic plants and animals of Missouri for the use and enjoyment of the people.

Goals: The nine goals of The Next Generation of Conservation guide the division. Our objectives are to maintain aquatic biodiversity, reduce the effects of aquatic nuisance species, provide enjoyable fishing trips, protect aquatic habitat, and inform and educate the public about Missouri's aquatic resources.

Missouri's aquatic resources are vast and diverse. Missouri has almost 17,000 miles of permanent rivers and streams and another 39,000 miles of intermittent streams. The state also has about 780,000 acres of lakes (36 percent public). Each year, millions of people use and enjoy our waters, and fishing continues to be one of our most popular outdoor activities. About 22 percent of our residents aged 16 and older fish sometime during the year. During 2005, MDC sold 1,267,776 fishing permits and tags of all types to 843,784 people. Fishing is big business and very important to the state's tourism industry.

Organization: To carry out its mission and achieve its goals, the division has fisheries management staff deployed in MDC's eight regions. Management efforts are supported by five warmwater fish hatcheries, five cold-water fish hatcheries, the Stream Unit and central office staff.

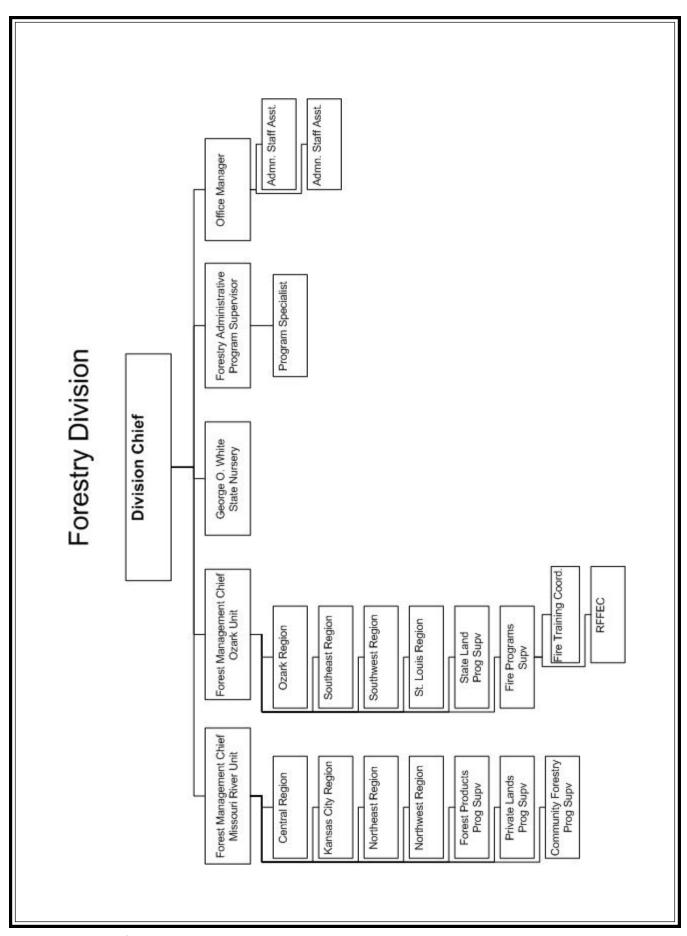
### **Programs:**

Regional staff is responsible for monitoring and maintaining the quality of the aquatic resources, managing the public fisheries resources, providing technical guidance in lake and stream management to private landowners and other state and federal agencies, providing and assisting with public information and education, and representing the division and MDC on matters pertaining to the aquatic resources of their region.

The staffs of the five warmwater hatcheries are responsible for rearing the fish needed to stock public waters, waters used for special fishing events and aquatic resource education, and private lakes that qualify for initial stocking of fingerling fish. They also play a vital role in our efforts to restore state and federal endangered species. The five coldwater hatcheries rear the trout needed to stock public waters. Their staffs are also responsible for stocking and managing the four trout parks that are enjoyed by more than 400,000 anglers each year.

The Streams Unit is responsible for administering two programs-the Stream Team, which consists of 63,080 citizen volunteers, and Stash Your Trash. It works with the Missouri Department of Natural Resources on the Volunteer Water Quality Monitoring program and provides stream technical services to MDC staff, other state and federal agencies and private landowners.

Central office staff directs and administers division programs, works on the acquisition and development of public fishing and boat access areas, coordinates angler recognition programs, develops and revises technical and popular written materials and provides administrative support for division and MDC staff and programs.



# **Forestry Division**

*Mission:* To protect and manage the forests of the state for long-term resource health and sustainability, and for the use and enjoyment of Missouri's citizens.

#### Goals:

- Forest management decisions and actions are scientifically based, in concert with MDC goals, and aimed at developing healthy and sustainable forest ecosystems.
- Private land and community forest resource management is an emphasis for Forestry Division. It focuses on landowner education and the development of partnerships with other agencies, organizations and industry.
- Forestry Division public land management activities maintain the long-term integrity of forest ecosystems, while contributing to societal and economic goals and needs.

Organization: To fulfill its mission, the division is organized into seven main program areas as described below. Administrative staff is assigned to specific program areas, while field staff works across all program areas.

#### **Programs:**

Private Land - Foresters assist Missouri landowners with forest management through one-on-one contacts and by using the Forest Crop Land program (state forestry law), Tree Farm program, Agroforestry, Forest Stewardship, Forest Legacy and many other state and federal cost-share programs. We assist more than 1,200 landowners with management on 60,000-plus acres annually.

Public Land - The division manages in excess of 440,000 acres of public forest land. Foresters also provide technical assistance on lands managed by the Wildlife Division. We annually complete more than 55,000 acres of active management. This includes forest inventory, tree planting, timber sales, forest stand improvement, wildlife management practices, and glade and savanna management.

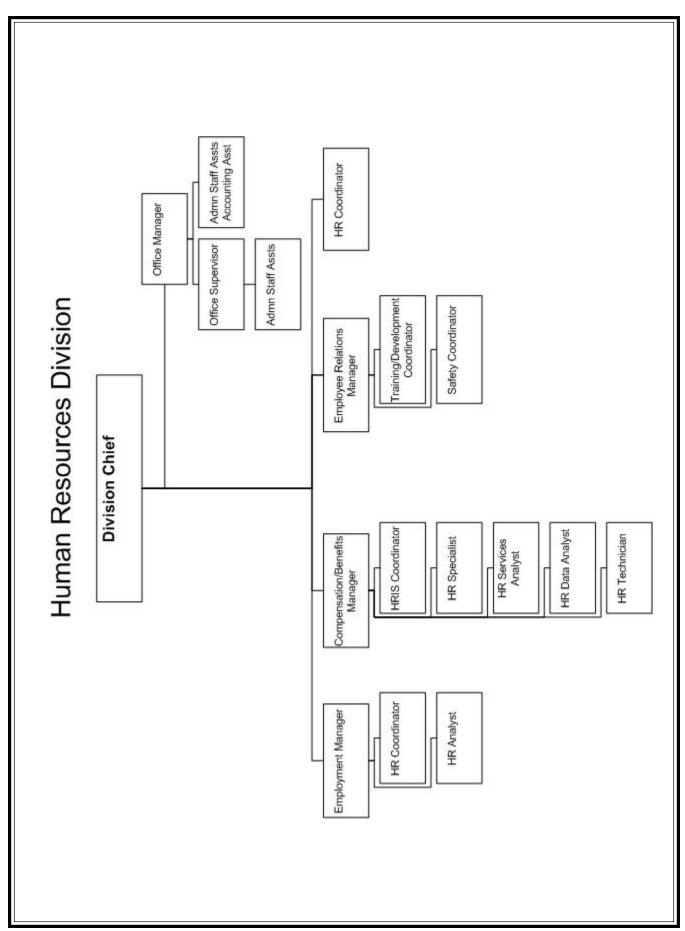
Fire—We have statutory responsibility for wildfire suppression in the state. Division personnel work closely with more than 800 fire departments to offer training, provide federal excess property, provide grants for the purchase of fire equipment and promote wildfire prevention activities.

**Urban and Community Forestry**—This program provides planning and technical assistance to communities and homeowners. In addition, the Tree Resource Improvement and Maintenance (TRIM) program provides more than \$270,000 of cost-share assistance each year to more than 40 Missouri communities for tree planting and maintenance of their urban forest resources. We have a partnership with the National Arbor Day Foundation to promote and administer the Tree City USA program. Missouri has more than 69 certified Tree City USA communities. We also work with the Arbor Day Foundation to provide training to electric utility right-of-way clearing crews through the Tree Line USA program. Nine utility providers are Tree Line USA certified.

Forest Products - The division works closely with Missouri's forest products industry to monitor the use of our state's forest resource. The Missouri Forest Products Association and Forestry Division jointly sponsor logger training courses aimed at educating loggers about forest management principles, introducing new techniques and concepts, and enhancing the safety of timber-harvesting operations. To date, more than 250 loggers have been through the program in Missouri.

Outreach and Education - Forestry Division works closely with our Outreach and Education Division to increase Missourians' understanding about their state's forest resources and proper forest management activities. In addition, foresters conduct programs, field days and workshops for schools, special interest groups and the general public on a wide range of forest management issues.

State Forest Nursery - The nursery annually grows and distributes more than 5 million seedlings of more than 50 species. The seedlings include trees and shrubs suitable for reforestation and wildlife habitat restoration activities. The seedlings are planted on both public and private land throughout the state.



## **Human Resources Division**

Mission: To sustain the human resources services and programs that are necessary for a diversified, dynamic workforce and for an organization considered an "employer of choice."

#### Goals:

- Assist MDC in hiring and retaining a highly trained and diverse workforce
- Advance practices that encourage employee empowerment and recognize job accomplishments
- Ensure ongoing employee training and development programs are predicated on important job competencies and offered in the most efficient and cost-effective manner
- Reinforce safety-conscious attitudes and practices in all aspects of employee work

#### **Programs:**

**Compensation**—Staff performs compensation and classification activities that are used to support an employee compensation program which is both competitive and fiscally responsible. Staff also administers significant employee benefits programs such as a comprehensive medical and life insurance program.

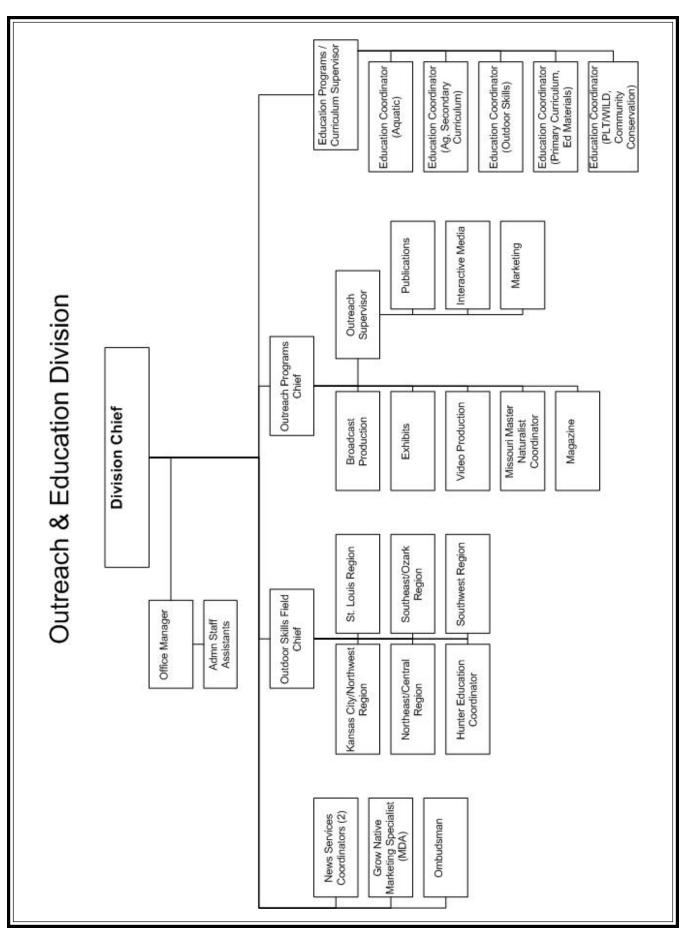
Employee Relations – Staff coordinates activities promoting employee relations such as programs that recognize years of service, special achievement and retirement, and administers employee health and wellness programs that include health screenings and health education. Staff also assists employees and supervisors during grievance and corrective action processes to ensure that objective, fair and appropriate actions occur.

Policy Administration - Staff maintains MDC's Human Resources Policy Manual by developing new or revised employment-related policies that help supervisors guide employees uniformly and fairly. Staff also tracks state and federal laws, executive orders, and regulations that address human resources management issues, and works to ensure MDC is in compliance.

**Recruitment and Selection**—Staff uses a variety of recruitment methods to attract qualified applicants for job vacancies and assists supervisors with all activities during the evaluation and recommendation processes. In addition, staff monitors MDC's affirmative action effort to ensure equal employment opportunities.

Training and Development - Staff administers MDC's employee development and leadership training programs that includes the Academy for Leadership Excellence. The academy provides competencybased training for all employees, which is based on specifically identified knowledge, skills, behaviors and attitudes MDC considers important to success.

Safety - Staff administers loss-control programs including safety training, hazard identification on public lands, chemical safety, and personal injury, vehicle accident and public mishap reporting and monitoring.



## **Outreach and Education Division**

*Mission:* To help Missourians connect with nature and conserve it, too.

#### Goals:

- Teach Missourians how to sustain healthy plant and animal communities.
- Provide Missourians of all ages with skills and knowledge to enjoy the outdoors.
- Show the many benefits people get from conserving our fish, forests and wildlife.
- Teach the importance of science and ethical behavior in balancing how we live with our fish, forests and wildlife.
- Help Missourians understand these key concepts of conservation:
  - a. A healthy environment needs a diverse mix of plants and animals.
  - b. Forests, grasslands, rivers and wetlands are always changing—with or without us. To live in balance with the natural world, we must understand how it works and work with it.
  - c. It's natural for what's on the ground to flow downhill into streams and ponds. To protect the health of our waters and the life that depends on them, we must be mindful of what we put on the land and how we change it.
  - d. Hunting, fishing, trapping and harvesting wood are part of our heritage, provide us with valuable resources and, perhaps most important, are tools that can be used to improve and maintain the health of our fish, forests and wildlife long into the future.

#### **Programs:**

Conservation Nature Centers and Visitor Centers—These are located in Jefferson City, Kirkwood, Blue Springs, Springfield, Cape Girardeau, Glencoe, Branson, St. Charles, St. Louis and St. Joseph. Exhibits and naturalist-led programs, as well as walking trails, offer about 900,000 visitors each year a variety of opportunities to learn about and enjoy Missouri's nature. Although it is also an MDC facility focused on education, the Discovery Center in Kansas City uses a slightly different approach to reaching youth in an urban area. Six thematic classrooms provide students with a broad range of hands-on learning about conservation concepts and sustainable resources.

Shooting Range and Outdoor Education Centers—Five staffed shooting ranges provide safe, inviting places for hunters and others to practice shooting rifles, shotguns, handguns and archery equipment. In addition, a variety of conservation-related classes are offered to the public. These include birding, orienteering, fishing, youth hunting and more. More than 130,000 people attend programs and use these facilities each year. In addition, more than 70 unstaffed ranges (including both firearms and archery ranges) serve Missourians throughout the state. In some cases, local cooperative agreements provide management of the facilities.

Teacher/Youth Leader Training-Conservation education consultants, outdoor skills specialists and education coordinators work with teachers and youth groups throughout the state. Teachers receive free conservation education materials and learn to incorporate conservation concepts and outdoor skills into their curriculum.

Hunter Education - Since 1988, hunter education training has been mandatory for all hunters born on or after Jan. 1, 1967. Our staff works with the conservation agents to coordinate volunteer hunter educators, who provide about 1,000 classes each year. These result in hunter certification of about 27,000 people annually.

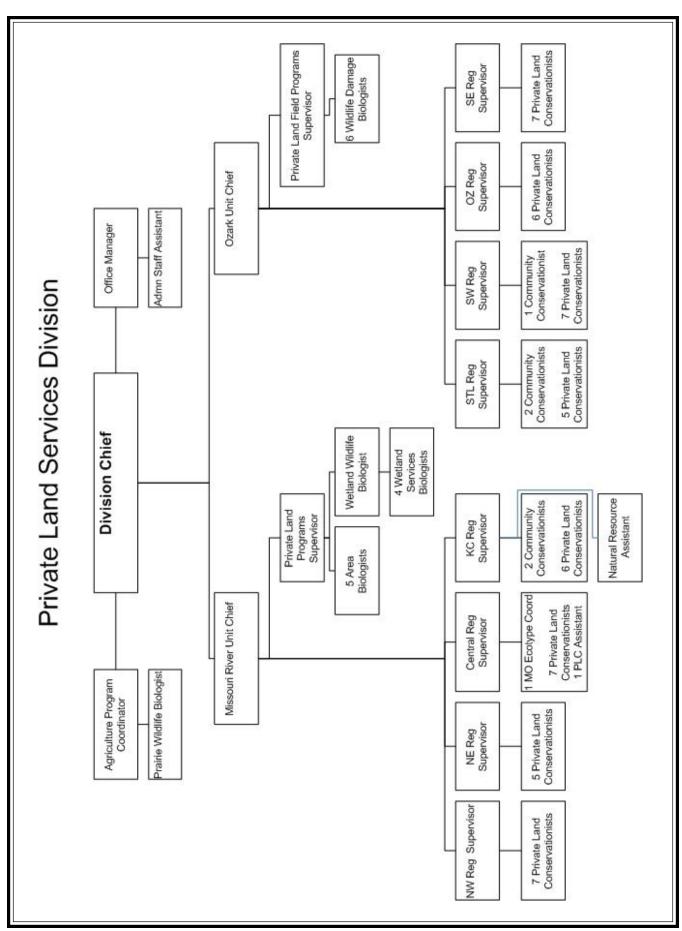
Grants to Schools - In recent years, about \$70,000 in grants has been available to develop outdoor classrooms, where students can learn firsthand about plants and wildlife. In 2006, \$250,000 was also available to schools for conservation field trips. As part of the new "Learning Outdoors" program, conservation grants to schools will be expanded in future years. Grants for field trips, outdoor learning areas, instructional kits and outdoor skills equipment will complement the use of new learning units in the classroom. Outdoor Skills Events (youth fishing/hunting clinics, Missouri's Outdoor Women and partnership events such as 4-H Shooting Sports, etc.) - Each year we present special public events to give thousands of Missourians of all ages a chance to learn hands-on skills so they can enjoy our great outdoors for years to come.

Missouri Conservationist magazine and "Missouri Outdoors" TV Show - These award-winning programs combine to give more than a million Missourians free access to information on how to conserve and enjoy our state's fish, forest and wildlife resources. The magazine is mailed to almost 500,000 readers each month and the TV show airs throughout the state. A quarterly magazine section for children is also sent to schools.

Web, News, Publications, Video and Audio Productions – It takes many kinds of media to provide information on conservation and all its related opportunities. We serve up millions of web pages each year, almost 1,000 different free publications, for-sale books, weekly news releases, and loan dozens of video features provided on a free-loan basis. The information covers topics as diverse as identifying birds, hunting and fishing regulations, and creating wildlife habitat in an agricultural landscape. The information flows in as well as out-an ombudsman finds the answers to citizens' questions and helps to investigate concerns and resolve complaints.

Citizen Involvement/Awareness Programs (Grow Native, Missouri Master Naturalist, No More Trash) - In the past few years, several new programs to help Missourians promote conservation at a statewide and grassroots level have gotten underway. Three partners work with MDC to sponsor these (Missouri Department of Agriculture, University of Missouri Extension, and Missouri Department of Transportation, respectively).





## **Private Land Services Division**

Mission: Help landowners meet their land management objectives in ways that enhance fish, forest and wildlife conservation.

**Organization:** With 93 percent of Missouri in private ownership, the health of our natural resources will be determined by private landowners. In recognition of the need to provide enhanced support to traditional agricultural producers, as well as growing numbers of people who own land for recreation, Private Land Services Division was established in 1999. The division contains fish, forest, wildlife and agriculture professionals who provide conservation assistance to private landowners in Missouri.

#### Goals:

- To provide timely technical advice to private landowners who request assistance.
- To help private landowners locate financial assistance that could defray resource treatment costs.
- To build partnerships with other agencies and the private sector that support private landowner efforts to achieve conservation.
- To improve awareness of conservation issues/challenges, as well as methods of improvement.

### **Programs:**

**Technical Support**-Private Land conservationists are available to evaluate resource needs and provide advice/recommendations to private landowners through in-office or on-ground visits, as well as workshops, field days and other initiatives. Most of these positions are co-located in USDA service centers to make contact easy for private landowners in local communities throughout the state.

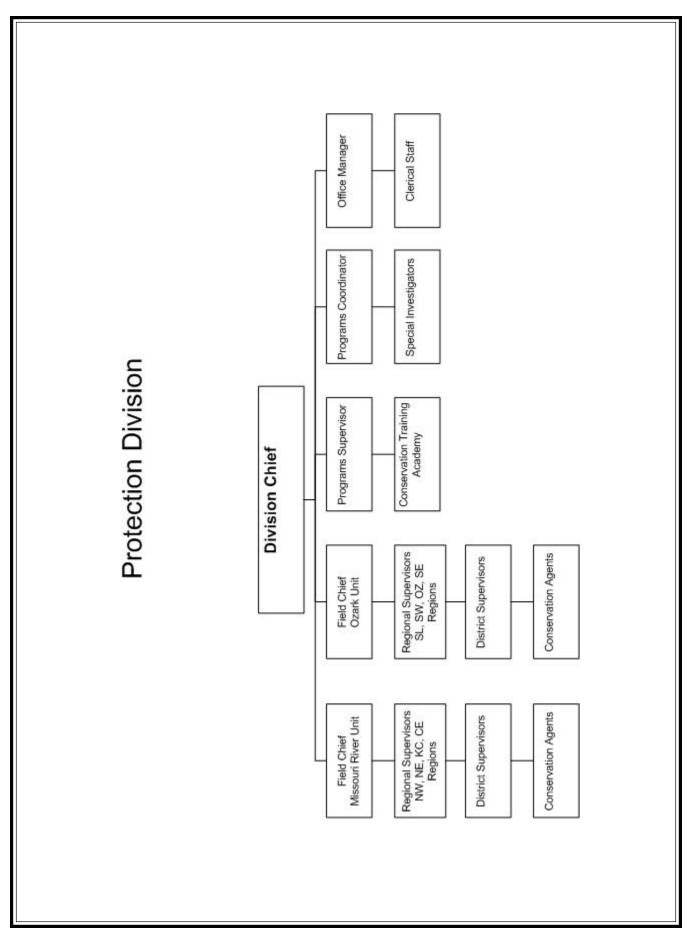
Financial Assistance – MDC has established effective working partnerships with the Natural Resources Conservation Service and Farm Service Agency to integrate fish, forest and wildlife considerations into implementation of Farm Bill programs that include Conservation Reserve program, Wetland Reserve program, Environmental Quality Incentives program, Grassland Reserve program, Conservation Security program and Wildlife Habitat Incentives program. MDC is also in partnership with non-governmental organizations such as Ducks Unlimited, Quail Unlimited, the National Wild Turkey Federation, Missouri Prairie Foundation, Quail Forever and Pheasants Forever to develop cost-share and other initiatives through matching arrangements.

Wildlife Damage Assistance - Wildlife damage-control biologists provide expert and specialized technical assistance to private landowners who experience problems with wildlife including beaver, coyote, otter, Canada geese, deer and other species.

Agriculture Liaison - Liaison efforts with agriculture agencies and groups are offered to foster communication and understanding of fish, forest and wildlife issues as relates to agriculture. These efforts are very important since 65 percent of the land area of Missouri is included in farms.

Community Conservation Program - Community conservationists in Kansas City, St. Louis and Springfield/Branson/Joplin areas are available to deliver natural resource technical services at the municipal, county and regional level. Their job focus is to work with communities, urban planners and developers to make informed land-use decisions that enhance the conservation of Missouri's forest, fish and wildlife resources.

Native Ecotype Program - Prairie once covered about one-third of Missouri; however, more than 99 percent of native prairie has been converted to other uses, risking the genetic diversity associated with native prairie plants. This program seeks to conserve native prairie plants by using seed collected from the wild to establish plots from which seed can be harvested and made available to interested growers for further propagation. The program focus is on plants for which commercial sources are unavailable or very limited. After seven years of operation, the Missouri Ecotype program distributed seed of 28 native plant species to about three dozen growers. The program will end in 2006 with an MDC refocus on promotion of the use of native plants for conservation purposes.



## **Protection Division**

Mission: To protect and conserve Missouri fish, forest and wildlife resources and to serve citizens through a coordinated program of resource law enforcement, education, information and one-on-one contacts.

### **Programs:**

Conservation Agents - Agents carry out a variety of programs for MDC within their county assignments. Major job components are resource law enforcement activities; hunter education; local media liaison duties (many with regular radio/TV programs and newspaper articles); educational and informational presentations to adult and youth groups; wildlife surveys; response to fish kills, wildlife nuisance and damage complaints; and basic fish, forest and wildlife management advice and services to private landowners. Conservation agents are the official MDC representatives in their local assignments.

Wildlife law enforcement efforts to maintain compliance with the Wildlife Code, and enforcement of other state laws for the safe public use of MDC-owned lands, represent a major portion of Protection Division's workload. Conservation agents contacted 210,912 hunters and anglers in FY06 to ensure compliance and to provide regulation information. During these contacts, agents noted 26,800 violations; issued 4,013 written warnings; and made 7,504 arrests. This depicts a 96 percent conviction rate, which indicates high-quality work and excellent public support by agents in the area of resource law enforcement.

Training - Because of the nature of their work, conservation agents must have specialized training and a broad working knowledge of all MDC programs and areas of MDC responsibilities. New agents are required to have a bachelor of science degree in forestry, fisheries management, wildlife management, wildlife conservation, natural resources conservation law enforcement, criminal justice, agriculture, education with an emphasis in science or biology, or other related sciences, and must also successfully complete 26 weeks of intensive training before assignment to a district. After completion of training, the Missouri Department of Public Safety issues a peace officer standards and training license attesting that the agent has completed 1,000 hours of POST licensed law enforcement training. A class of 20 conservation agent trainees began training in April 2006 and graduated in October. In-service training is provided annually in accordance with changing resource conditions and law-enforcement standards. All licensed peace officers and reserve officers must successfully complete a minimum of 48 hours every three years of continuing education to maintain their peace officer licenses.

Operation Game Thief - Operation Game Thief provides a way for citizens to anonymously report poaching incidents with the opportunity for a monetary reward. In FY06, OGT produced 218 convictions from 482 telephone calls, which resulted in \$10,100 in reward money being paid to informants. The new Operation Game Thief traveling exhibit was used 114 days throughout Missouri this past year.

**Revocations**—Interstate Wildlife Violator Compact-Missouri is a participating state in the Interstate Wildlife Violator Compact. The compact is a legal organization of the wildlife agencies of 24 member states that agree to reciprocally honor revocations/suspensions of hunting, fishing and trapping privileges for wildlife-related violations. During the last fiscal year, 855 people from other states had their privileges revoked in Missouri through provisions of the Interstate Wildlife Violator Compact; an additional 134 were revoked for cause by the Conservation Commission in Missouri and submitted to the IWVC. Participation in the compact also benefits Missourians who travel to other compact member states for hunting and fishing activities. If found in violation, they may be given the opportunity to resolve the citation by mail rather than being required to post a bond before leaving the member state. They are subject to revocation by all compact states if the citation is ignored.

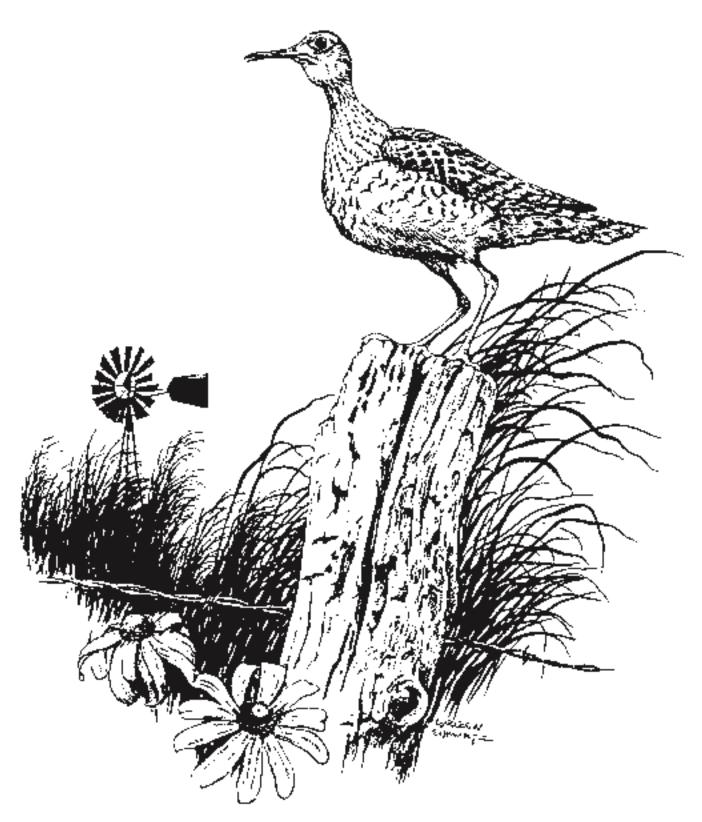
Missouri Seed Program - The Missouri Seed program provides habitat-planning information and foodplot seed to Missouri landowners. The goals of the program are to improve the quality of wildlife habitat on private lands and promote better farmer and landowner relations with MDC. Conservation agents distributed 156,098 pounds of seed to 3,253 landowners. The program is an avenue through which to contact private landowners regarding wildlife management programs, as well as other programs which MDC offers. Protection and Private Land Services divisions share in the administration of the program.

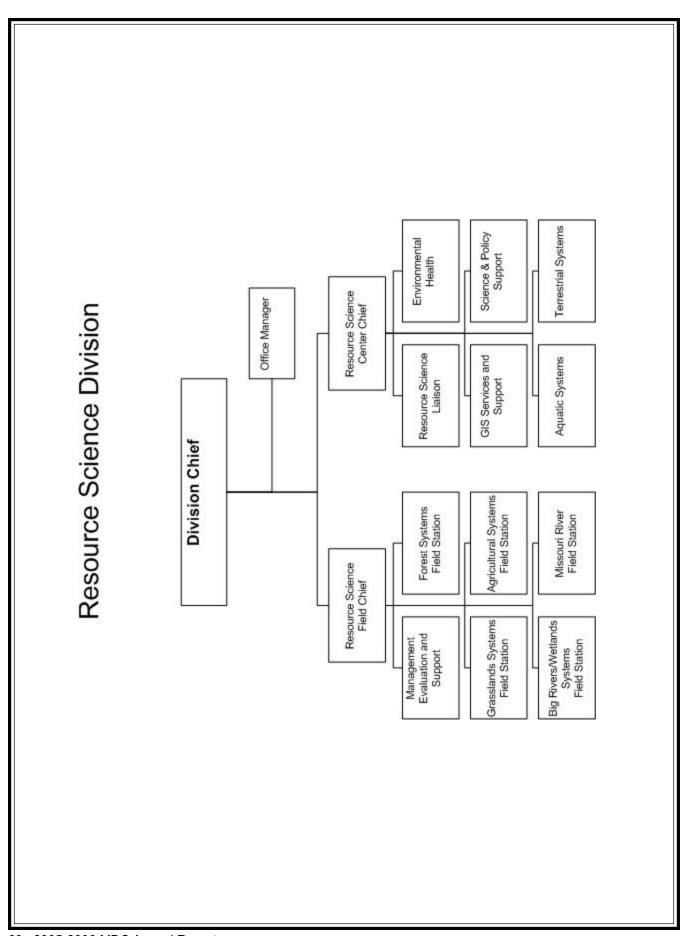
Hunter Education - Hunter education certification is required for purchasing any type of Missouri firearm hunting permit for people born on or after Jan. 1, 1967 (except the youth deer and turkey hunting permit). Conservation agents work with Outreach and Education division personnel and approximately 2,000 volunteer instructors to coordinate hunter education courses in all 114 Missouri counties. Protection Division personnel are also heavily involved in investigating every hunting incident in the state.

Hunting Method Exemption Program – The Hunting Method Exemption program provides special exemptions to physically disabled people by allowing them to hunt and take wildlife by methods not otherwise legally permitted. During last fiscal year 4,820 hunter method exemptions were approved for Missouri citizens.

**Group Fishing Permit Exemptions** – Protection Division administers permit exemption authorizations to supervised groups involved in rehabilitation programs or groups of hospital patients or people with disabilities under therapy. During this past fiscal year, 218 group fishing permits were issued for outings, providing fishing experiences to people who otherwise may not be able to participate in outdoor fishing activities.

Share the Harvest-Conservation agents and the Conservation Federation of Missouri coordinate the Share the Harvest program, in which hunters may donate deer meat to those in need through established charitable organizations. During FY06, approximately 5,100 hunters donated 267,000 pounds of venison to needy Missourians. Since the inception of the program, more than 548 tons of deer meat has been donated to Missouri citizens. Hunters donating venison to the program pay for the processing and tell the processor how many pounds of meat they want to donate. Hunters who wish to donate their entire deer may receive a \$35 reduction in the price of processing, which is paid to the processor by the Missouri Conservation Federation. In some cases, local organizations provide additional funds for processing so there is no cost to hunters who wish to donate deer.





## **Resource Science Division**

*Mission:* Provide the science-based information needed to conserve, appreciate and effectively manage the living resources of Missouri.

**Goals:** Natural resource management is based on sound biological, geographical and sociological information. An objective to establish a nationally recognized, science-based model for conservation will be accomplished by 1) ensuring ongoing development of a comprehensive and integrated understanding of Missouri's living resources and their values to society, 2) using accumulated knowledge to inform and recommend conservation actions, 3) evaluating the biological and social impacts of conservation actions and 4) reporting emerging knowledge of Missouri's living resources.

An integrated focus in Resource Science Division is organized around six systems and functions rather than traditional disciplines, and is dedicated to delivery of management assistance through five field stations; this approach was the basis for the following organizational units within the division (see organizational chart):

**Terrestrial Systems** staff strives to understand plant and animal habitat relationships, monitor population status and develop harvest and species management recommendations. Staff is regularly involved with specialized projects to monitor wildlife and plant diversity and population changes and forest silviculture.

Aquatic and Wetland Systems scientists conduct research and surveys that center on issues involving fisheries management, wetland and waterfowl management, fish communities, watersheds, stream-riparian-floodplain systems, in-stream flow, stream bank stabilization and interactions among predators and prey and species of concern. Harvest management recommendations for statewide fish populations, waterfowl and other migratory birds are developed by this unit staff.

Science and Policy Support staff works to link and improve access to databases which document Missouri's rich biodiversity through a web-based archival and retrieval system. Post-season harvest hunter and angler surveys, attitude surveys and public-use surveys are conducted to better understand the opinions and attitudes of Missourians and to ensure that human dimensions information is integrated with biological information to inform management decisions. Natural resource economics data is collected in conjunction with the public use and attitude information. Biometricians ensure statistically sound study designs and the use of appropriate statistical techniques to analyze and interpret complex natural resources questions.

**Geographic Information Systems (GIS)** will continue to play an ever-increasing role in the natural resources management, planning and evaluation. The goal of the GIS program is to fully use geospatial technology and products to support natural resource decisions, archive the processes and evaluate the results. The GIS program supports more than 300 ArcInfo and ArcView users. Monthly training courses are conducted to help train new ArcView users and improve the skills of existing users.

The **Environmental Health** unit primarily provides the services that ensure monitoring and protection of Missouri's forest, fish and wildlife resources. Primary functions include protecting aquatic biodiversity such as mussel conservation and genetics research, water quality, forest health, and providing responsive service to agency staff, the public and other agencies and entities. Staff coordinates pollution and fish kill investigations with the Department of Natural Resources, and monitors contaminants in fish with the Department of Health.

The **Management Evaluation and Support** group provides the specific focus on research and monitoring to support field staff. This involves coordinating, designing and conducting surveys, monitoring efforts and applied research aimed at understanding the impacts of management actions on Missouri's resources. Scientists who work on crayfish, quail, karst and botanical surveys provide liaison support to local managers and facilitate the transfer of information within and across regions. Our division manages

Missouri's Natural Heritage program, which tracks the status and occurrence of 1,111 species of conservation concern and natural communities, and ensures that they are carefully documented, mapped and updated. In addition, our division supports the Missouri Fish and Wildlife Information System (MoFWIS), a searchable database of habitat, management and distribution data on more than 700 species.

The **Field Unit of Resource Science Division** is leading regional management evaluations by developing protocols and study designs with the goal of "learning by doing." Field stations, actively integrated with the division's centralized functions, focus on improving understanding of ecological systems, functions and processes by working with regional staff throughout the state.

- 1) The **Grasslands Systems Field Station in Clinton** focuses on ecological processes and management implications for cool- and warm-season grass pastures and hay lands, native prairie, savannas and glades and grassland-associated fish, invertebrate, wildlife species of conservation concern and all streams and impoundments fed by grassland watersheds.
- 2) The **Forest Systems Field Station in West Plains** focuses on ecological processes and management implications for upland forests, glades, savannas, springs, karst, fens and cold- and warm-water streams and impoundments drained by forested watersheds and management of forest-associated fish, invertebrate and wildlife species of conservation concern.
- 3) The **Big Rivers and Wetlands Systems Field Station in Jackson and Puxico** focuses on Missouri's large rivers and associated floodplains to understand landscape-level ecological processes, and develop tools and strategies to improve channel and floodplain habitats, bottomland forests and wetlands, for fish, invertebrate and wildlife communities including species of concern and invasive species.
- 4) The **Agricultural Systems Field Station in Kirksville** emphasizes annually cropped lands that produce cereal grains, oil crops, crops for human consumption and annually planted livestock forages. Also included in the field station's focus are retired crop lands including CRP plantings, cool-season grass pastures and old fields, concentrated livestock operations and streams and impoundments drained by agricultural watersheds and management for agricultural-associated fish, invertebrate and wildlife species of conservation concern.
- 5) The **Missouri River Field Station in Chillicothe** focuses on issues directly related to management of the Missouri River. Many aspects of large-river ecology will be addressed by the Big Rivers and Wetlands Field Station, including some important to the Missouri River. However, several active restoration and recovery programs are being conducted along the Missouri River, and this field station will bring a focused and coordinated monitoring approach among agencies to help clarify the success of these activities.

#### **Programs:**

**Population management**—Manage for, and when feasible, restore viable populations of plants, fish and wildlife compatible with the ecological capability of the land and balanced with the desires of resource users and the public.

Resource Science Division identifies priority population management challenges and develops recommendations, in collaboration with resource divisions, to manage harvested species, species of concern and invasive species.

**Ecological processes**—Increase our understanding of the processes that determine habitat conditions for native and introduced animals and plants.

Erosion and deposition through water, wind and fire are the natural disturbance and renewal processes that are essential to maintaining healthy systems and functions. The division focuses investigations on how to effectively re-establish or mimic these processes in Missouri's contemporary landscape to ensure restoration and management of plant and animal communities.

**Management evaluation**—Ensure that results of management and policy actions are measured and appropriately linked to resource-related outcomes, budgets and staff time.

Ongoing evaluation of resource responses and resource uses are essential to determine whether goals are met and to understand when change is needed. Resource Science Division promotes "learning by doing" to improve resource management programs and to ensure accountability of staff and budget resources.

Human dimensions – Provide and promote the use of human dimensions information in the management decision process.

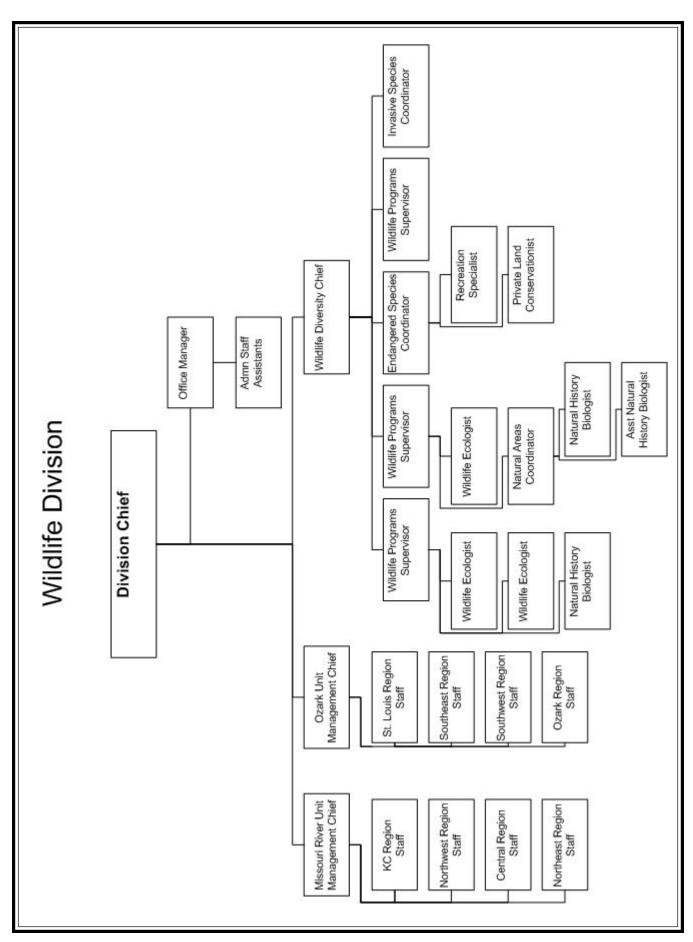
Resource Science Division collaborates with other divisions to ensure that human dimensions information is acquired and used in policy and management decisions. This information is used to track changing public expectations, anticipate demographic trends, and ultimately to provide the information needed to make resource policy and management judgments.

Large-scale planning - Ensure that all planning and program efforts are well coordinated within and outside the agency, are based on sound science and include evaluative measures.

Advances in Geographic Information Systems and associated ecological and geospatial applications (e.g., Ecological Classification Systems) are used to inventory, assess and monitor resource condition and management results at national, state, regional and area scales. Using these tools, services and information are developed and supported that facilitate natural resources planning.

Information transfer - Manage, share and transfer data collected in a useful, archived and easily obtainable format.

The division ensures that information about population status, harvest and public use-as well as the results of investigations-are timely, current, accurate and available in a form that is useful.



## Wildlife Division

"Managing Wildlife...for the People"

Mission: To conserve for public benefit Missouri's wildlife resources and the landscapes on which wildlife depend, and to manage public lands to conserve and enhance their natural resources, provide vital ecosystem services, and invite public use and enjoyment.

#### Goals:

- Balance wildlife resource needs with public expectations.
- Advocate wildlife and biological diversity in conservation efforts.
- Actively seek ways to inform peers, cooperators and citizens about wildlife stewardship.
- Provide opportunity for all citizens to use, enjoy and learn about wildlife and their habitats.
- Manage 346 conservation areas and provide recreation, natural areas and natural history support to all management divisions and all MDC land managers.

Programs: Wildlife Division is responsible for the management of Missouri's wildlife resources and the habitats upon which they depend to best serve the long-term interests of the people of the state. Fulfilling this role involves a wide range of programs and activities on public, as well as private, land.

## Public Resources Management-MDC area facilities/infrastructures maintained and operated in a way that invites public use.

- Ensure that conservation area facilities are clean and operated in ways that welcome citizen visitors to the areas.
- Maintain infrastructures of all types in ways that enable them to meet their use expectations.
- Administer the Wildlife Restoration Grant in ways that provide federal support for operations, maintenance, habitat management and resource planning on conservation lands.
- Promote Adopt-A-Trail groups to help with trail maintenance.
- Develop mourning dove habitats as a means to attract doves and hunters to MDC lands, using FY05 results to improve program effectiveness and efficiency.

## Deer populations balanced with the interest and tolerance of landowners, hunters and the general public.

- Manage conservation area deer-hunting programs in ways that provide a range of hunting opportunities for deer hunters as outlined in the deer strategic direction statement.
- Ensure that deer populations on conservation areas do not create problems for neighbors.
- Explain the rationale for our new strategic direction for deer management to citizens, including issues underlying changes.
- Assist private landowners with deer-harvest management programs on private lands.

## Manage forests on MDC lands that promote forest health, sustainable wood products, wildlife habitat and ecosystem restoration.

- Continue efforts to assist Forestry Division staff in the attainment of agency timber-management objectives.
- Actively pursue opportunities to use timber harvests as a means to attain natural community restoration objectives, especially for oak-pine woodlands, savannas, glades and prairies.
- Assist Forestry in natural area management activities, such as prescribed burning, on Forestry areas.

## Initiate an MDC invasive species coordination function in conjunction with other affected/involved divisions.

- Integrate the coordination of invasive and exotic species control into agency Wildlife Diversity programs.
- Control invasive/exotic species on conservation lands, especially in natural communities, while taking actions where appropriate to control the introduction of new invasive/exotic species to MDC lands.

## Strive for wildlife diversity through natural community management/restoration on MDC lands.

- Manage MDC's Wildlife Diversity program in a way that benefits the full range of MDC programs and Missouri landscapes.
- Continue support of the Missouri Natural Areas program.
- Continue to coordinate MDC's endangered species program.
- Restore natural communities on MDC lands, especially native grasslands and wetlands.
- Continue a renewed focus on the "active management" of wildlife habitats and plant/animal communities on MDC lands.
- Ensure that aquatic species are profiled in agency wildlife diversity efforts, especially the State Wildlife Grant and Landowner Incentive programs.
- Implement the directions outlined in MDC's Strategic Guidance for Northern Bobwhite Quail Recovery.
- Implement management programs on conservation lands that feature priority focus areas for bird conservation as outlined in Partners in Flight, Central Hardwoods Joint Venture, and Lower Mississippi Valley Joint Venture Bird Conservation plans, and Important Bird Area recommendations.

## Develop and strengthen effective conservation partnerships.

- Administer Missouri's Comprehensive Wildlife Strategy (CWS), an approach to conservation planning and implementation within a framework of partnerships to integrate conservation action for all wildlife statewide.
- Administer State Wildlife Grants (SWG) to improve opportunities for MDC to work with conservation partners to conserve species with the greatest conservation needs.
- Continue joint support with Audubon Missouri for a wildlife ecologist position in the Audubon Missouri office that works to conserve bird populations.
- Continue to promote all bird conservation in Missouri through participation in the Missouri Bird Conservation Initiative, within the framework of 41 organizations and private citizen partners.
- Assemble the conservation partnerships necessary to secure grants and other funding for rehabilitation of wetland management structures on the oldest wetland management areas through the Golden Anniversary Wetlands initiative.
- Form partnerships with landowners for wildlife stewardship on private land through the Landowner Incentive program and provide technical support through personal landowner contacts.

# **Conservation by the Numbers**

- ▲ Actual Funds Available and Disbursements
- ▲ Number of Deer Harvested by County
- ▲ Number of Turkeys Harvested by County
- ▲ Acres of Conservation Land by County
- ▲ Payment In-lieu of Taxes (PILT) by County
- ▲ County Aid Road Trust (CART) Program
- ▲ Capital Improvement Projects Funding by County
- ▲ Number of Deer and Turkey Permit Holders by County of Residence
- ▲ Number of Fishing Permit Holders by County of Residence
- ▲ Number of Small Game Permit Holders by County of Residence
- ▲ Number of Landowner Deer Permit Holders by County of Residence
- ▲ Number of Landowner Turkey Permit Holders by County of Residence

## MISSOURI DEPARTMENT OF CONSERVATION

## **Actual Funds Available and Disbursements** For Fiscal Year 2006

### **RECEIPTS**

- • —	
Sales Tax	\$99,069,219
Hunting, Fishing & Commercial Permit Sales	28,285,286
Federal Reimbursements	, ,
Agricultural Sales	1,843,197
Timber Sales	2,777,227
Other Miscellaneous Receipts	937,121
Miscellaneous Fees & Tags	1,438,017
Surplus Property	488,360
Interest	1,265,130
Publication Sales	996,870
Nursery Stock Sales	945,797
Grants, Gifts, Bequests & Donations	126,394
Contractual Services	1,382,378
Rentals	55,654
Miscellaneous Sales	135,287
Land Sales	380,320
Yield Tax	49,399
Refunds	92,417
Damage Reimbursements	37,128
Concession Income	15,185
TOTAL RECEIPTS	\$164,707,456
DISBURSEMENTS	
DISBURSEMENTS  County Assistance Payments	1,396,316
County Assistance Payments	\$31,881,332
County Assistance Payments	\$31,881,332 11,649,737
County Assistance Payments	\$31,881,332 11,649,737 15,168,275
County Assistance Payments	\$31,881,332 11,649,737 15,168,275 16,219,278
County Assistance Payments  Capital Improvements  Fisheries  Forestry  Wildlife	\$31,881,332 11,649,737 15,168,275 16,219,278 16,232,568
County Assistance Payments Capital Improvements Fisheries Forestry Wildlife Outreach & Education	\$31,881,332 11,649,737 15,168,275 16,219,278 16,232,568 7,908,722
County Assistance Payments Capital Improvements Fisheries Forestry Wildlife Outreach & Education Private Land Services	\$31,881,332 11,649,737 15,168,275 16,219,278 16,232,568 7,908,722 13,640,869
County Assistance Payments Capital Improvements Fisheries Forestry. Wildlife Outreach & Education Private Land Services Protection	\$31,881,332 11,649,737 15,168,275 16,219,278 16,232,568 7,908,722 13,640,869 12,095,061
County Assistance Payments Capital Improvements Fisheries Forestry Wildlife Outreach & Education Private Land Services Protection Resource Science	\$31,881,332 11,649,737 15,168,275 16,219,278 16,232,568 7,908,722 13,640,869 12,095,061 4,345,058
County Assistance Payments Capital Improvements Fisheries Forestry Wildlife Outreach & Education Private Land Services Protection Resource Science Regional Public Contact Offices	\$31,881,332 11,649,737 15,168,275 16,219,278 16,232,568 7,908,722 13,640,869 12,095,061 4,345,058 29,962,307
County Assistance Payments Capital Improvements Fisheries Forestry. Wildlife Outreach & Education Private Land Services Protection Resource Science Regional Public Contact Offices Administrative Services and Human Resources	\$31,881,332 11,649,737 15,168,275 16,219,278 16,232,568 7,908,722 13,640,869 12,095,061 4,345,058 29,962,307 11,526,041

